423.7405
AA
01
Ref.

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

THE LIBRARY OF THE
OCT 17 1955

October 1955 • 35c

Aviation's Man of the Year

'...an outstanding airman and military statesman who has met the challenge of the times'

GEN. NATHAN F. TWINING, *Chief of Staff, United States Air Force*

IN THIS ISSUE:

Main Street in the Hydrogen Age: *A Special Report*

TOMORROW'S AIRCRAFT: One step closer

Jet development tames flaming saucers...to squeeze more energy from fuel

Making flame do tricks—like taking the shape of a flat, stationary saucer—is part of the jet engine research at Westinghouse. By putting flame through its paces, engineers learn how to maintain fire in a small space to liberate the most energy . . . develop smaller, more efficient combustion chambers and afterburners. Specialists meet frequently to discuss combustion problems and direct effort along the most productive lines.

This flame research—one of a hundred avenues of aviation gas turbine development—is typical of Westinghouse corporate capability. Metallurgists investigate new heat-resisting alloys; casting engineers develop new precision methods and chemists work on new fuels and lubricants.

These projects are just some of the *new* things going on at the Westinghouse Aviation Gas Turbine Division. They are all part of our program of jet engine development for commercial, military and missile use. All-out research and development is a Westinghouse contribution to turbojet design that is aimed at helping you bring tomorrow's aircraft... One Step Closer. J-91035

★ ★ ★

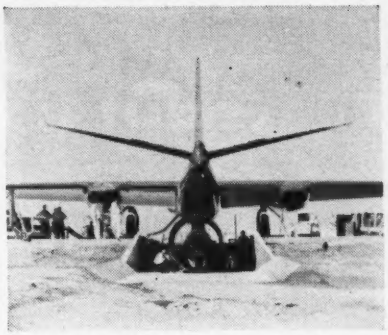
Basic research in fields allied to jet propulsion is a corporate function—carried on by persons such as this Westinghouse man. Your AGT sales engineer thus is backed by the corporate capability of all of Westinghouse as well as specific AGT Division facilities and experience.

THE WESTINGHOUSE AVIATION FAMILY

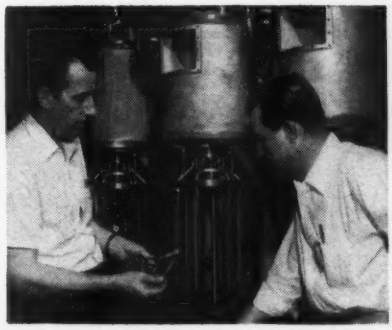
Jet Propulsion • Aircraft Electrical Systems and Motors • Airborne Electronics • Airborne Systems Components • Wind Tunr Airport Lighting • Ground Electronics

YOU CAN BE SURE...IF IT'S

Westinghouse

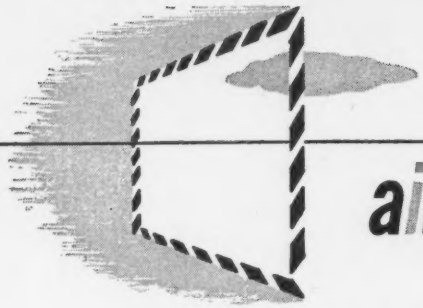


Flying test beds like this B-45 airplane are used to test new designs *in the air*. Flight testing is the ultimate proof of the value of a new design.



These two development engineers are evaluating a new fuel nozzle. The equipment in the background is designed to test the performance of fuel systems.

This is Allan U. Macartney, your Aviation Gas Turbine sales engineer in the Dayton, Ohio, area. He is THE MAN WITH THE FACTS. Contact Al or his counterpart in your area for FACTS on Westinghouse and Rolls-Royce engines and designs or write to Westinghouse, P. O. Box 288, Kansas City, Mo.



air mail

It's Really Showing!

Gentlemen: Pardon, but your "slip" is showing again. On page 74 of the September issue of AIR FORCE, a caption appears below a rocket-firing F-94C as thus—"A North American F-86D Sabrejet lets go with a salvo of rockets."

I was sho' nuff' glad to get my September issue. It's great! And AIR FORCE gets better with each issue. I hope that I will never be without my subscription to this fine magazine of American airpower. Keep up the good work, fellas.

Incidentally, we are forming a new Atlanta Squadron of our Georgia Wing.

Lew Wright
Atlanta, Ga.

Gentlemen: . . . From my knowledge of aircraft, the plane is an F-94C Starfire and not an F-86D Sabrejet.

John P. Brown
Mt. Clemens, Mich.

Gentlemen: . . . I believe the fighter-interceptor is a Lockheed F-94C Starfire. Finding such a mistake in AIR FORCE surprised me.

Harry V. Cogburn, Jr.
Ridge Spring, S. C.

Gentlemen: The "North American F-86D Sabrejet" pictured on page 74 of your excellent September issue suspiciously resembles a Lockheed F-94C Starfire.

Byron Rosenberg
Bronx, N. Y.

Gentlemen: This must have been a very busy month for the staff, as a titled photograph went to press in error. . . .

The F-86D has sure changed.

A/2C Yuen-gi Wee
Niagara Falls, N.Y.

● *The caption was correct—it's just the wrong picture!—The Editors.*

An Enviable Record

Gentlemen: Have really been enjoying reading your magazine and getting pertinent "poop" from it, some of which is used again in our own magazine the *Airlifter.*

Reference your article on MATS's achievements in your "Airpower in the News" column, (July '55 issue). We here in the 315th Combat Cargo Air Division are pretty proud of our achievements, too, and would appreciate mention of that in this column or elsewhere in the magazine.

During the month of July the total of 1,000,000 tons of cargo and passengers carried was reached, a total that has never been reached in the Air Force before, and this with a fleet of less than 200 aircraft. Also, aircraft of the division, which include C-124s, C-54s, C-119s, C-47s, and C-46s, carried over 4,200,000 passengers and over 300,000 air evacs, this all being accomplished since September 1950.

As a comparison, 315th airlifted almost 2,400 priority passengers and 327 tons of cargo daily. The 315th Air Division furnishes the airlift for the Far East. They also have flown special missions, to New York carrying the twenty-five atom-burned Hiroshima girls, missions to Calcutta, India, Australia, and the like.

The 315th, up until December of 1954, was commanded by Maj. Gen. Chester E. McCarty who was succeeded by Brig. Gen. Russell L. Waldron, former FLYTAF Vice Commander. General McCarty is now the 18th Air Force Troop Carrier Commander.

Capt. Tim Dunn
Chief, OIS
APO, San Francisco, Calif.

Interesting Sidelight

Gentlemen: Your July issue, page 4, credits Maj. Urban L. Drew with being the first allied pilot to shoot down two German jet aircraft on *October* 7, 1944, when he intercepted two ME-262s near Osnabruck, and shot both down within fifty seconds.

Gen. Adolf Galland in his book, *The First and the Last; the Rise and Fall of the German Fighter Forces, 1938-1945,* page 342, states that the first ME-262 fighter unit was formed at Achmer, near Osnabruck, under the command of Walter Nowotny, one of Germany's most successful fighter pilots with a bag of 250 enemy aircraft. On October 9, Galland reports, Nowotny tangled with a formation of Thunderbolts and Mustangs and destroyed one before one of his jet engines fell out and his plane plummeted to the ground and exploded.

Is it possible that Major Drew could have shot down Germany's greatest ace and another member of the Squadron of Experts in less than a minute? Or did some other man get credit for the victory of October 9?

John L. Sullivan
New York, N.Y.

● *Anyone know for sure?—The Editors.*

WW I National Guard

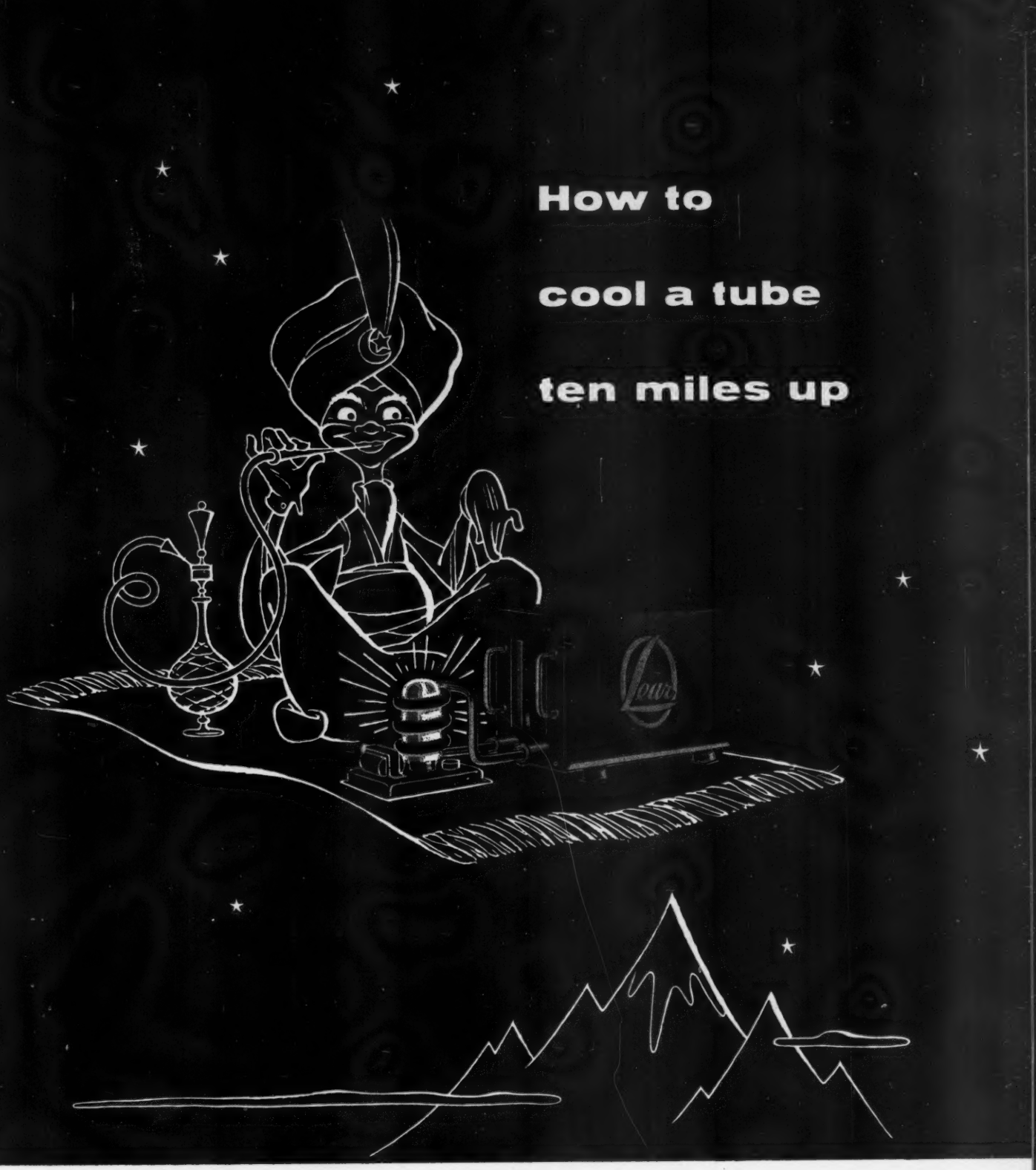
Gentlemen: The article "The Air Guard's New Mission" in the September issue of AIR FORCE needs correcting, as may be verified by referring to the "New York National Guardsman," of March 1938.

There were no air units of the National Guard in World War I. Possibly the article meant the First Reserve Squadron, which was organized about June 1917. Raynal (not Reynal) C. Bolling was then a major in the Reserves, having previously commanded the First Aero Co., NGNY, until about October 1916.

The First Aero Co., NGNY, did not go to France, as it was mustered out on May 23, 1917. This first NG air unit was organized November 1, 1915, and served four months in the

(Continued on page 7)

AIR FORCE Magazine is published monthly by the Air Force Association. Printed in U.S.A. Re-entered as second class matter, December 11, 1947, at the post office at Dayton, Ohio, under the act of March 3, 1879. **EDITORIAL CORRESPONDENCE AND SUBSCRIPTION** should be addressed to Air Force Association, Mills Building, Washington 6, D. C. Telephone, Sterling 3-2305. Publisher assumes no responsibility for unsolicited material. **CHANGE OF ADDRESS:** Send old address *and* new address (with zone number, if any) to Mills Building, Washington 6, D. C. Allow six weeks for change of address. **SUBSCRIPTION RATES:** $4.00 per year, $5.00 per year foreign. Single copy, 35 cents. Association membership includes one-year subscription: $5.00 per year (Cadet, Service, and Associate membership also available). **ADVERTISING CORRESPONDENCE** should be addressed to Sanford A. Wolf, Advertising Director, 114 East 40th St., New York 16, N. Y. (MUrray Hill 9-6817). Midwest office: Urben Farley & Company, 120 S. LaSalle St., Chicago 3, Ill. (Financial 6-3074). West Coast Office: Hugh K. Myers, Manager, 623 West 5th St., Los Angeles 17, Calif. (MAdison 9-1841). **TRADEMARK** registered by the Air Force Association. Copyright 1955, by the Air Force Association. All rights reserved under Pan American Copyright Convention.



Why do you *have* to cool an electron tube at altitudes where air temperatures hover near 65° below?

Well, take, for example, the high-input tubes in certain critically important equipment built by the W. L. Maxson Co. for our first-line strategic bombers. In a matter of seconds, these tubes can get really hot—hot enough to melt! Stratospheric air, cold as it may be, is just too thin to dissipate so much heat so fast.

Maxson has solved this problem with compact, lightweight, Lear-Romec *liquid*-coolant systems, specially designed to keep the tubes at safe temperatures.

At 50,000 ft. these efficient Lear-Romec cooling packages dissipate up to ⅓ more heat than other available equipment. We'll be delighted to prove this, upon request, by sending you complete test reports via return air mail.

35 YEARS OF SERVICE TO AVIATION

LEAR **LEAR-ROMEC DIVISION** Abbe Road, Elyria, Ohio

80-10

These Combat Twins can score a smash hit!

REPUBLIC'S F-84 "THUNDER TWINS"— TWO MORE VITAL MILITARY AIRCRAFT WITH MAJOR COMPONENTS by **TEMCO**

These twins complement each other ideally. Thunderflash, the photo reconnaissance twin in the foreground, locates the targets. Thunderstreak, the A-bomb carrying fighter-bomber, smashes same. Designated RF-84F and F-84F, these combat twins are two of the Air Force's most versatile planes. In addition to their regular missions, the Thunderflash has a special assignment. It has been equipped to be carried kangaroo fashion in the belly of a B-36 and launched or retrieved in the air. Thus, fighter speed over the target is coupled with bomber range — a formidable combination. Republic keeps production schedules smooth on these planes by subcontracting several assemblies, including rear fuselage sections of both, to TEMCO. Work on these vital planes is reinforcing TEMCO's well established reputation for producing a quality product, on schedule, at one of the lowest costs in the industry.

Thunderstreak and Thunderflash rear fuselage sections nearing completion on TEMCO assembly lines.

ENGINEERS . . . If you are interested in a position with a *growing weapon systems organization*, write full particulars to E. J. Horton, Jr., Engineering Personnel, TEMCO Aircraft Corporation, P. O. Box 6191, Dallas 2, Texas.

DALLAS, TEXAS

Mexican Border Service. We camped an entire winter at Mineola in tents . . . and living in tents under those conditions was intense living. When you hear anyone griping about housing facilities, just mention this.

At the outbreak of World War I, there were twenty-four Reserve Military Aviators, most of whom were National Guard officers trained at the Signal Corps Aviation Station at Mineola, but only the four of us in the First Aero Co., NGNY, had been on flying status.

However, we were not the first National Guard pilots, as that honor belongs to Comdr. Beckwith Havens, then a member of Co. A, Signal Corps, NGNY, who flew in the Army maneuvers in Connecticut in 1912. Five of us "airmen" were attached to the Aviation Section, Signal Corps, USA, at that time.

In 1910 we had an airplane at Pine Camp, N. Y., but that doesn't count, as it lacked sufficient antigravitation to get off the ground.

The comparison of the present Air Guard and its 2,055 aircraft, 7,000 officers, and 54,000 airmen, with the First Aero Co. and its five planes, four officers, and forty men, seems slightly invidious or something. There could be no birds if there were no eggs, and we Early Birds laid the eggs from which the Air Guard hatched.

That reminds me of the little fellow on the chain gang making little ones out of big ones on the rock pile. He was hammering away, but getting nowheres fast, when a husky guard came over and cracked the rock with one blow. The little fellow said, "That's easy, after I softened it." So when we read about the Air Guard cracking tough jobs today, we little fellows like to think we had a share in softening them forty years ago.

It is certainly surprising to read that the National Guard Bureau has "lost" the name of Col. Joseph E. Carberry, as he is on the retired list. The Air Guard would indeed be fortunate if their USAF instructors approached his high standards.

The reference to Liberty engines in 1916 is off the beam, as they were not in production until late in 1917.

Norbert Carolin
New York, N. Y.

● *The National Guard Bureau informs us that the reference to Major Bolling was taken from official Bureau records. Researchers apparently didn't check out Colonel Carberry far enough.*

Our records show the first NG pilot was Lt. Col. C. B. Winder of Ohio, who learned to fly in June 1912.

First American-completed DH-4, powered by a Liberty engine, was flown in October 1917. General Wilson's article, however, did not try to pinpoint 1916 as a specific year but rather was intended to apply generally to the WW I period.—The Editors.

Little Cloud

Gentlemen: Just re-reading our favorite magazine (July issue) and I'd like to add my bit to what by now must be a torrent of laudatory letters commenting on Colonel Ritchey's "We Are Paid to Fight—Not to Show a Profit." He and I seem to be of the same mind. However, I get the idea that he seems to know better than I what he is talking about. I expect his piece to stir up a lot of comment. The statistical boys will regard it as heresy, of course, and they will have the figures to "prove" their point. Perhaps Colonel Ritchey's article will be the "cloud no bigger than a man's hand . . ."

M/Sgt. Frank J. Clifford
Philadelphia, Penna.

Takes a Man

Gentlemen: Colonel Ritchey's article in your July issue was an outstanding contribution, to say the least, and certainly was a most accurate analysis of current Air Force problems. During the past four years as a personnel officer at operating and staff levels, I consistently noted specific instances and examples of weaknesses pointed out in the article, e.g., a superior's protection of an incompetent subordinate in order to preclude any ill feeling; officers through the grade of lieutenant colonel running indoors to escape retreat while their own personnel watched this very degrading and unpatriotic action; immorality and debauchery on the part of officers and NCOs openly displayed or gleefully narrated to young, subordinate enlisted personnel; a most capable wing commander – who could not even transfer an A/3C within his far-flung wing without approval from higher headquarters because of a new management application imposed upon him. When noting the attitude, discipline, and spirit of our young officers assigned to learn, support, and eventually lead such practices as outlined above, I can only say that Colonel Ritchey's veiled prophecies are the very least of the results we can expect.

One organization took the opportunity to outline some of our weaknesses in leadership, responsibility, discipline, and plain old work to a group of new ROTC second lieutenants, and further outlined their opportunities to help correct this situation. Their response was most heartening, being reflected in high caliber efficiency, discipline, and attitude. Thus, by placing their military duties in the light of responsibility and creative opportunity, rather than two years of forced servitude, some of these ROTC graduates will elect an Air Force career. I firmly believe Colonel Ritchey's article should be required reading for every Air Force officer and NCO.

America's past military successes were due, to a large extent, to the average soldier's ability to interpret and solve a problem as a *man*, and not as a technician or through blind adherence to specific, detailed orders. Air Force personnel can still be businessmen, but the key lies in the last syllable of the word. Emphasis on benefits, attractions, management, trade skills, etc., is not the answer. The solution is to build *men*. A *man* has pride and dignity—from this, and only this, stems leadership, with its attendant efficiency, esprit de corps, and career incentive. Money never has, and never will, buy a MAN!

Capt. David S. Kahne
Randolph Field, Tex.

Sink the Navy

Gentlemen: I am an extremely ardent enthusiast of the USAF and am much more interested in its role in National Defense than the Navy.

Since your magazine is likewise interested in the Air Force, why, then, I ask myself and you, do you insist on thrusting the Navy down our throats in your "Air Force" magazine?

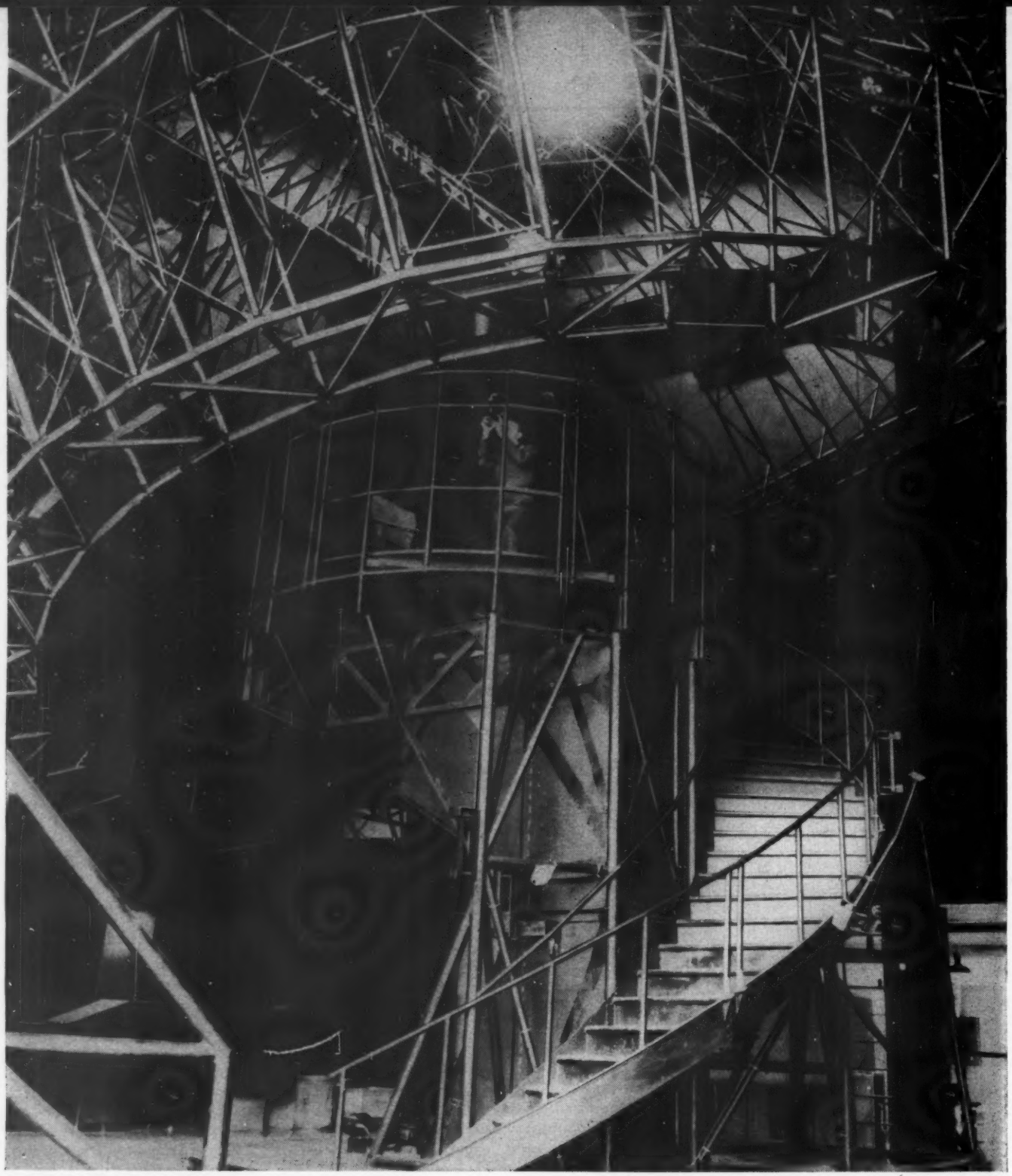
It has happened for months, but in the August issue I call your attention not only to the back cover but to the advertisement on page 12.

Doesn't it seem a little ridiculous to see the lovely Lady of Liberty holding aloft her torch in support of two antiquated Navy planes—and in the only Air Force magazine we have, to see the caption "Wear Navy Wings of Gold. Apply today at any Naval Air Station," etc., etc.?

Let the mighty Air Force Association, of which I am a paying and enthusiastic member, not stoop to selling short the Air Force just because Chance Vought or Convair has to make a living by advertising the Navy.

Chaplain (Major) Connor G. Cole
Manhattan Beach Air Force Station
Brooklyn, N. Y.

● *We are not* Good Housekeeping. *We have no seal of approval for our advertisers. They may say what they wish.—The Editors.*

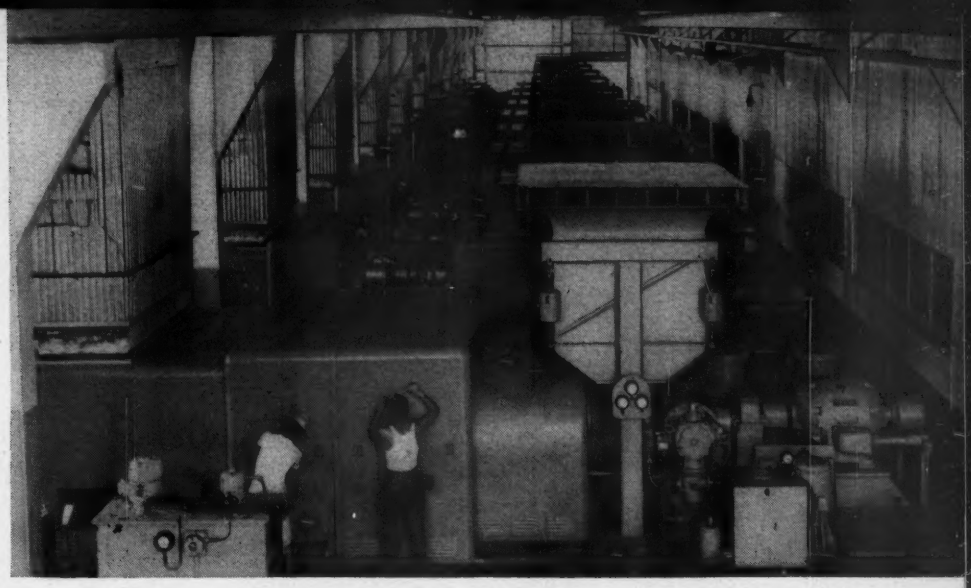


CELESTIAL NAVIGATION—Link Aviation's high-speed, high altitude celestial navigation trainer; only such trainer capable of simulating trans-Polar flight. Trains navigators in techniques of guiding planes by the stars.

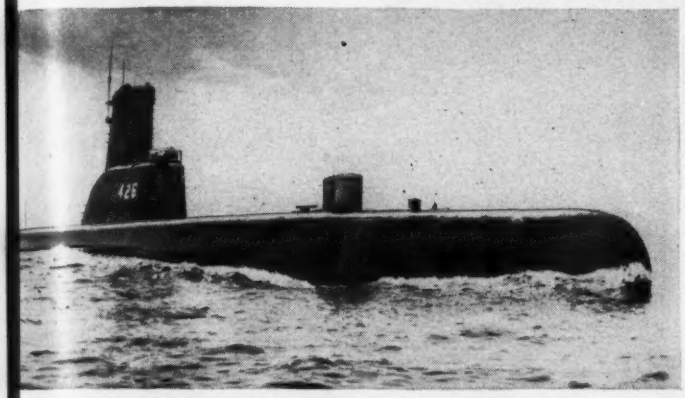
Vital Controls

The controls on the world's fastest submarine; the most advanced airborne navigation system known to exist; other similarly advanced military systems and equally advanced industrial equipment and control systems are outstanding examples of the work of the producing companies of General Precision Equipment Corporation. More than a dozen major industries are served by instrumentation and systems designed, developed and produced by GPE Companies.

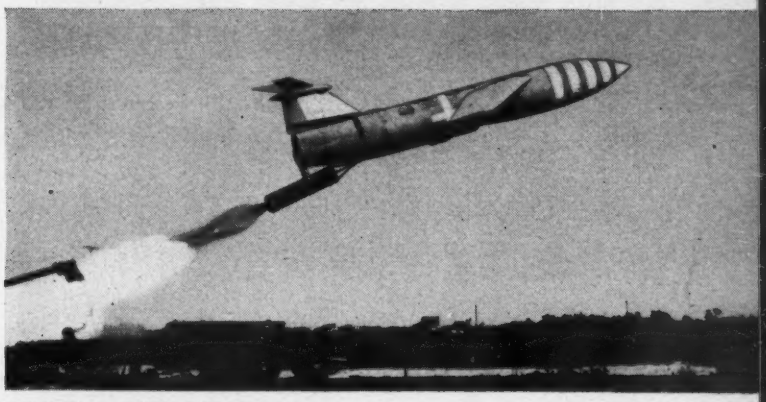
Ten of the companies in the GPE Group — notably Askania, Kearfott, Librascope and Link Aviation—devote substantial resources to the development and manufacture of instruments, servos and controls. These are used in equipment and systems developed by these companies



PROCESS CONTROL—Askania controls regulate speed of the ten turbines which develop compression to maintain gas suction pressure in Creole Petroleum Corporation's giant, pile-supported oil drilling operation on Lake Maracaibo, Venezuela.



SUBMARINE OPERATION — Controls developed and produced by Askania Regulator Company are utilized to govern operation of U. S. Navy's modern Guppy type submarines.



MISSILE GUIDANCE —One of the many guided missiles equipped with Kearfott basic gyro reference systems, the B-61 Matador—U. S. Air Force's first successful ground-to-ground tactical weapon.

GPE CAPACITIES

● Manufacturing
●● Manufacturing and product development
●●● Manufacturing, product development and research
□●● Pilot manufacturing, product development and research

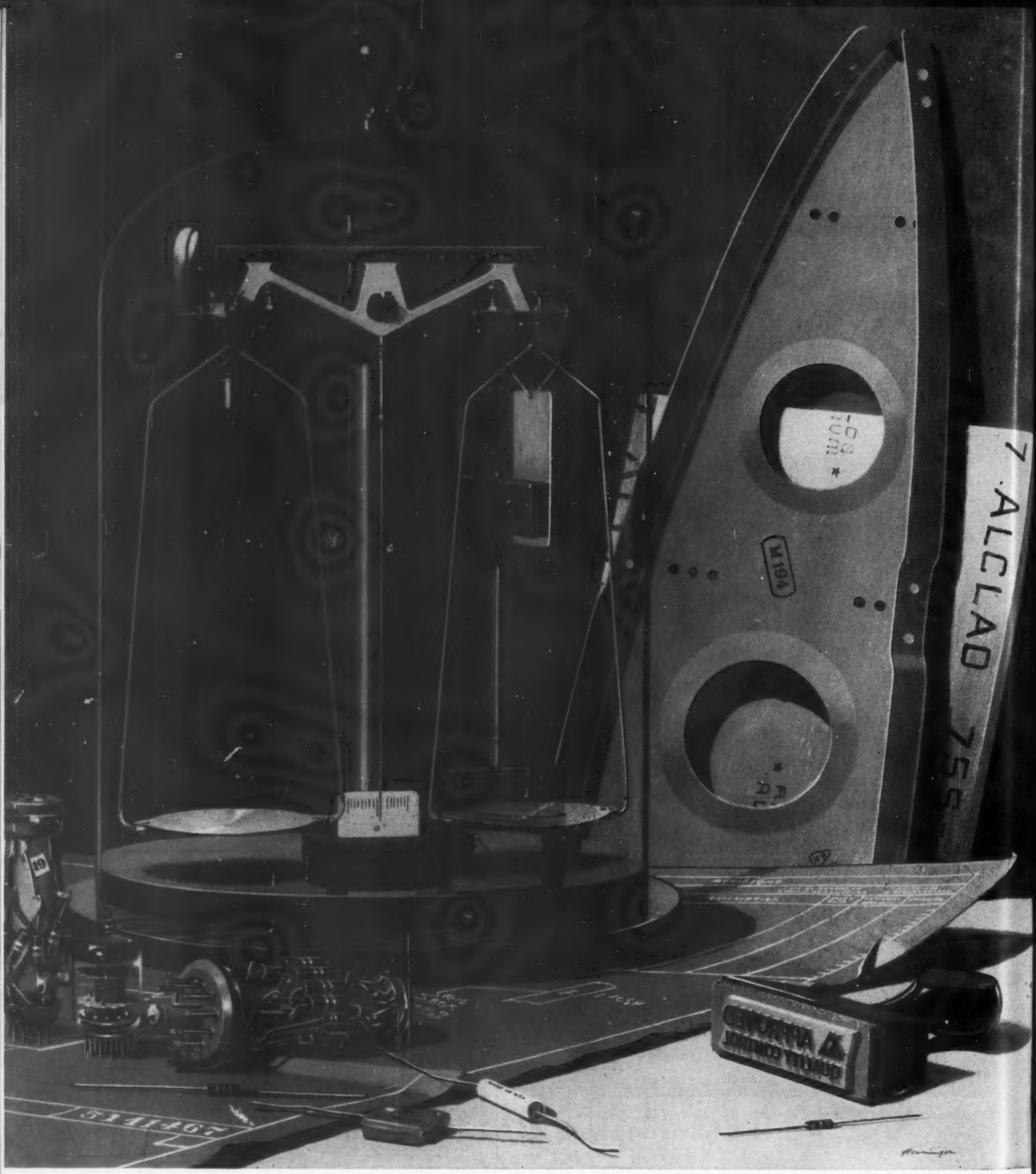
	KEARFOTT COMPANY, INC.	INTERNATIONAL PROJECTOR CORPORATION	BLUDWORTH MARINE DIVISION	GENERAL PRECISION LABORATORY INCORPORATED	THE GRISCOM-RUSSELL COMPANY	LINK AVIATION, INC.	THE HERTNER ELECTRIC COMPANY	THE STRONG ELECTRIC CORPORATION	J. E. McAULEY MFG. CO.	ASKANIA REGULATOR COMPANY	AMPRO CORPORATION	LIBRASCOPE, INCORPORATED
PRECISION MECHANICS, OPTICAL DEVICES, CERAMICS	●●●	●●	●●	□●●	●●	●●●	●●	●●●	●●	●●	●●	●●●
ELECTRICAL EQUIPMENT and COMPONENTS	●●●	●	●			●●●	●●●	●●	●	●●	●	●●●
ELECTRONICS	●●●	●●	●●●	●●●		●●●	●	●●		●●●	●●	●●●
HYDRAULICS, LIQUIDS PROCESSING, HEAT EXCHANGE		●●			●●●					●●●		
TELEVISION Studio, Theatre, Educational, Business, Industrial	●	●		●●●		●				●		
INSTRUMENTS, SERVOS, CONTROLS Hydraulic, Pneumatic, Magnetic, Electronic	●●●	●	●●	□●●		●●●	●●	●●		●●●	●	●●●
AIRCRAFT and MISSILE GUIDANCE, CONTROL, SIMULATION	●●●	●		●●●		●●●	●			●●	●	●●●
AUTOMATIC COMPUTERS and COMPONENTS	●●●	●	●	□●●		●●●				●●●		●●●
RADAR, MICROWAVE, ULTRASONICS	●●●	●	●●	●●●		●●		●		●		
MOTION PICTURE and AUDIO EQUIPMENT		●●●		□●●			●●	●●●	●●●		●●●	
NUCLEAR POWER COMPONENTS and CONTROLS	●●●				●●					●●		●●●
SYSTEMS ENGINEERING Aeronautical, Naval, Industrial	●●●			●●●	●●●	●●●				●●●		●●●

themselves, as well as in systems and equipment developed and produced by other manufacturers of advanced technological equipment.

All GPE Producing Companies work in the advanced areas of highly specialized fields and are engaged in the design, development, manufacture and sale of equipment which is closely related from a technical point of view. It is all precision equipment; it derives from similar fields of technical competence; it saves labor, increases productivity or achieves results which cannot be achieved with even limited use of on-the-spot manpower. The chart here shows the specialized fields in which the key GPE Producing Companies work.

In addition to specialization in its particular products and fields of technical competence, each of these companies has at its command, as required, the facilities and specialized techniques of the other GPE Companies in their respective fields. Interrelation of their resources is achieved through GPE's basic operating policy, GPE Coordinated Precision Technology. In all areas in which GPE Companies work, this coordination has been responsible for a wide variety of precision equipment of superior design and performance, embodying new, advanced principles.

A brochure relative to the work of the GPE Companies and GPE Coordinated Precision Technology is available. Address your request, or specific inquiries, to: GENERAL PRECISION EQUIPMENT CORPORATION — 92 Gold Street, New York 38, N. Y.



TRUE BALANCE—Northrop Aircraft's long-range goal is to maintain the most efficient organization possible for producing new, advanced weapon systems for our nation's defense. This involves more than years-ahead planning by Northrop engineers, scientists and administrators. Equally essential is *true balance* between creative research and economical manufacture. From such balanced operation within the Northrop sphere have come the Radioplane Company's family of pilotless drones and missiles, first and foremost in their field; the Scorpion F-89 interceptors, defenders of our vital sky approaches; and the Snark SM-62s, lethal intercontinental A-bomb carriers. Greater weapons of tomorrow are now taking form, their efficient and timely production assured by the well-balanced, streamlined Northrop organization.

NORTHROP

NORTHROP AIRCRAFT, INC. • HAWTHORNE, CALIFORNIA

Pioneers in All Weather and Pilotless Flight

INDEX TO ADVERTISERS

Aero Design & Engineering Co..... 121
Aircraft Radio Corp..... 127
AiResearch Manufacturing Co..... 118
Allison Div., General Motors Corp. 111
Arma Div., American Bosch Arma Corp. 116
Audio Equipment Co., Inc..... 119
Avro Aircraft, Ltd..... 115

B&H Instrument Co., Inc..... 63
Bendix-Pacific Div., Bendix Aviation Corp..... 44
Bendix Products Div., Bendix Aviation Corp.....Cover 3
Boeing Airplane Co..... 1
Burroughs Corp. 105

Cambridge Corp. 119
Canadair, Ltd. 43
Cessna Aircraft Co..... 52
Chance Vought Aircraft, Inc...72 and 73
Cline Electric Manufacturing Co.... 99
Consolidated Diesel Electric Corp. .....106 and 107
Continental Motors Corp..... 129
Convair, a Division of General Dynamics Corp.....Cover 4
Curtiss-Wright Corp. 122

Daystrom Instruments Div., Daystrom, Inc. 125
Decker Aviation Corp..... 124
Delco Radio, Division of General Motors Corp.....48 and 49
Douglas Aircraft Co., Inc..... 17

Fairchild Engine Airplane Corp., Aircraft Div.....22, 63, and 131

General Mills, Inc., Mech. Div.....65 and 126
General Precision Equipment Corp.....8 and 9

Hamilton Standard Div., United Aircraft Corp.....Cover 2

International Telephone & Telegraph Corp. 88

Jack & Heintz, Inc..... 112

Lear, Inc. (Romec Div.)..... 5
Laboratory for Electronics..... 80
Lewyt Manufacturing Corp..... 71
Lockheed Aircraft Corp.....58 and 59
Lockheed Aircraft Corp., Georgia Div. 14

MacMillan Co. 128
Martin, Glenn L., Co., Inc..... 13

Northrop Aircraft, Inc..... 10

Orenda Engines, Ltd..... 18

Pan American World Airways..... 117
Pyle-National Co., Inc..... 12

RCA Engineering Products Div., Radio Corp. of America..... 51
Raytheon Manufacturing Co..... 20
Reeves Instrument Corp..... 83
Republic Aviation Corp.....78 and 110

Sperry Gyroscope Co., Div. of Sperry-Rand Corp..... 102

Temco Aircraft Corp..... 6
Texas Instruments, Inc..... 123

US Air Force..... 130

Vickers, Inc. 90

Weber Aircraft Corp..... 95
Westinghouse Electric Corp.....2 and 3

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

Volume 38, No. 10 • October 1955

FEATURES

A Dangerous Calculated Risk?...GILL ROBB WILSON, PRESIDENT, AFA 15
Who Has the Power of the Purse?.....JOHN F. LOOSBROCK 16
For the Record..... 23
Statement of Policy..... 24
Here's What Went On in San Francisco..... 26
The Greatest Danger.....VIRGIL M. PINKLEY 29
The President's Annual Report.....JOHN R. ALISON 33
Our National Policy's Principal Force.....THE HON. ROGER LEWIS 34
A Salute to Our Pacific War Dead..... 37
The Shadow of Airpower at Geneva.....GEN. NATHAN F. TWINING 40
Main Street in the Hydrogen Age—A Symposium
Introduction.....GEN. GEORGE C. KENNEY 45
We Need to Know.....THEODORE F. KOOP 46
Religion and Education.....THE REV. JOHN J. CAVANAUGH 53
Community Relations.....MAYOR GEORGE R. DEMPSTER 56
Civil Defense.....BRIG. GEN. THOMAS R. PHILLIPS, USA (RET.) 60
Through the Convention with Sketch Book and Camera..... 64
Airpower Awards..... 68
Night Fighters..... 70
Science and the Military.....DR. H. GUYFORD STEVER 74
The 'Games' of Scientists.....DR. EDWARD TELLER 76
The Air Materiel Command—A Special Report
What's Ahead in Air Logistics.....GEN. EDWIN W. RAWLINGS 84
How the Air Force Goes Shopping...MAJ. GEN. DAVID H. BAKER 85
Air Materiel Command...AN AIR FORCE MAGAZINE PHOTOCHART 86
The Supply Picture.....MAJ. GEN. FREDERICK J. DAU 92
Getting Things There.....BRIG. GEN. RAYMOND L. WINN 94
Keeping Ready and Able.....COL. CLARE W. BUNCH 96
Reserve Clinic.....EDMUND F. HOGAN 100
What the Delegates Did..... 113

DEPARTMENTS

Air Mail..... 4
Wing Tips..... 12
Shooting the Breeze..... 21
Airpower in the News..... 81
Department of Amplification.. 110
This Is AFA 132

THE COVER

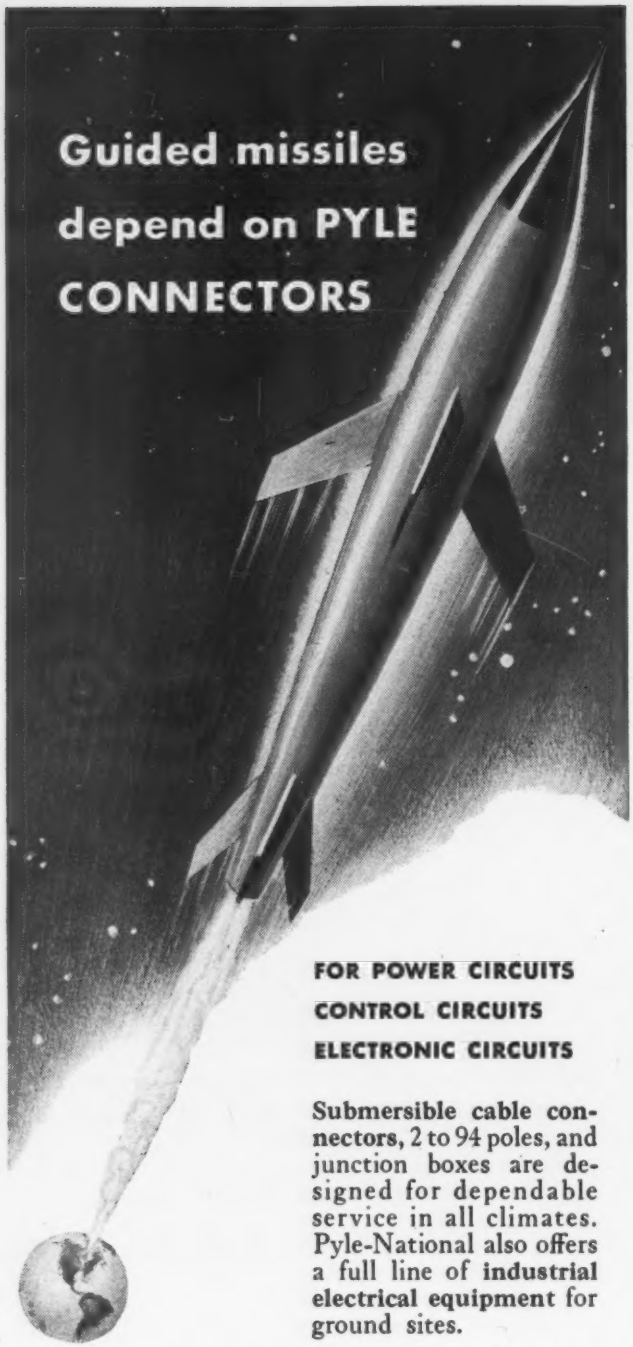
General Twining, USAF Chief of Staff, as the 1955 recipient of AFA's top award, the H. H. Arnold Trophy, won the title "Aviation's Man of the Year." The quotation on our cover is from his citation. In addition, General Twining was the main speaker at the Symposium Luncheon at AFA's Convention. His remarks appear on page 40. The color photo of the general was made by David P. Preston of *Parade Magazine* and appears on our cover with the permission of Parade Publications, Inc.

AIR FORCE MAGAZINE STAFF

JAMES H. STRAUBEL.....*Editor and Publishing Director*
JOHN F. LOOSBROCK.....*Managing Editor and Assistant Publisher*
RICHARD M. SKINNER.....*Assistant Managing Editor*
LEE KLEIN.....*Associate Editor*
JACK MACLEOD.....*Art Director*
NELLIE M. LAW.....*Editorial Assistant*
EDMUND F. HOGAN.....*Reserve Affairs Editor*
GUS DUDA.....*AFA News Editor*

•

SANFORD A. WOLF.....*Advertising Director*
JANET LAHEY.....*Advertising Production Manager*



FOR POWER CIRCUITS
CONTROL CIRCUITS
ELECTRONIC CIRCUITS

Submersible cable connectors, 2 to 94 poles, and junction boxes are designed for dependable service in all climates. Pyle-National also offers a full line of industrial electrical equipment for ground sites.

Please direct inquiries to: Manager of Special Products.

SINCE 1897

THE PYLE-NATIONAL COMPANY
Where Quality is Traditional
1347 North Kostner Avenue, Chicago 51, Illinois

wing tips

By Wilfred Owen

One of the old-timers riding the airlines recently was a 7,000-year-old woman from Jericho. Her skull, unearthed by archeologists, was being dispatched to a museum by air.

• • •

An Illinois couple has been married 4,000 feet in the air in the four-seater plane of the bride's father. After the bride had landed her man, they left for their wedding trip by automobile.

• • •

Last year the airlines carried 1,397,547,000 air mail letters.

• • •

Convair's XC-99 cargo carrier, the "Sky Goliath," is the world's largest land-based plane. Its tail fin is nearly fifty-eight feet high and its fuel tanks hold 21,116 gallons.

• • •

The British, who have been trying to keep birds away from airfields, have discovered that mothballs distributed

over a runway are effective in keeping the feathered folk from loitering.

• • •

American Airlines offers an eight-day "Western Circle" tour by air coach for $340. First overnight stop is Phoenix, followed by visits to Grand Canyon, Las Vegas, Hoover Dam, and Hollywood. For more adventurous sightseers there are tours of fourteen and sixteen days.

• • •

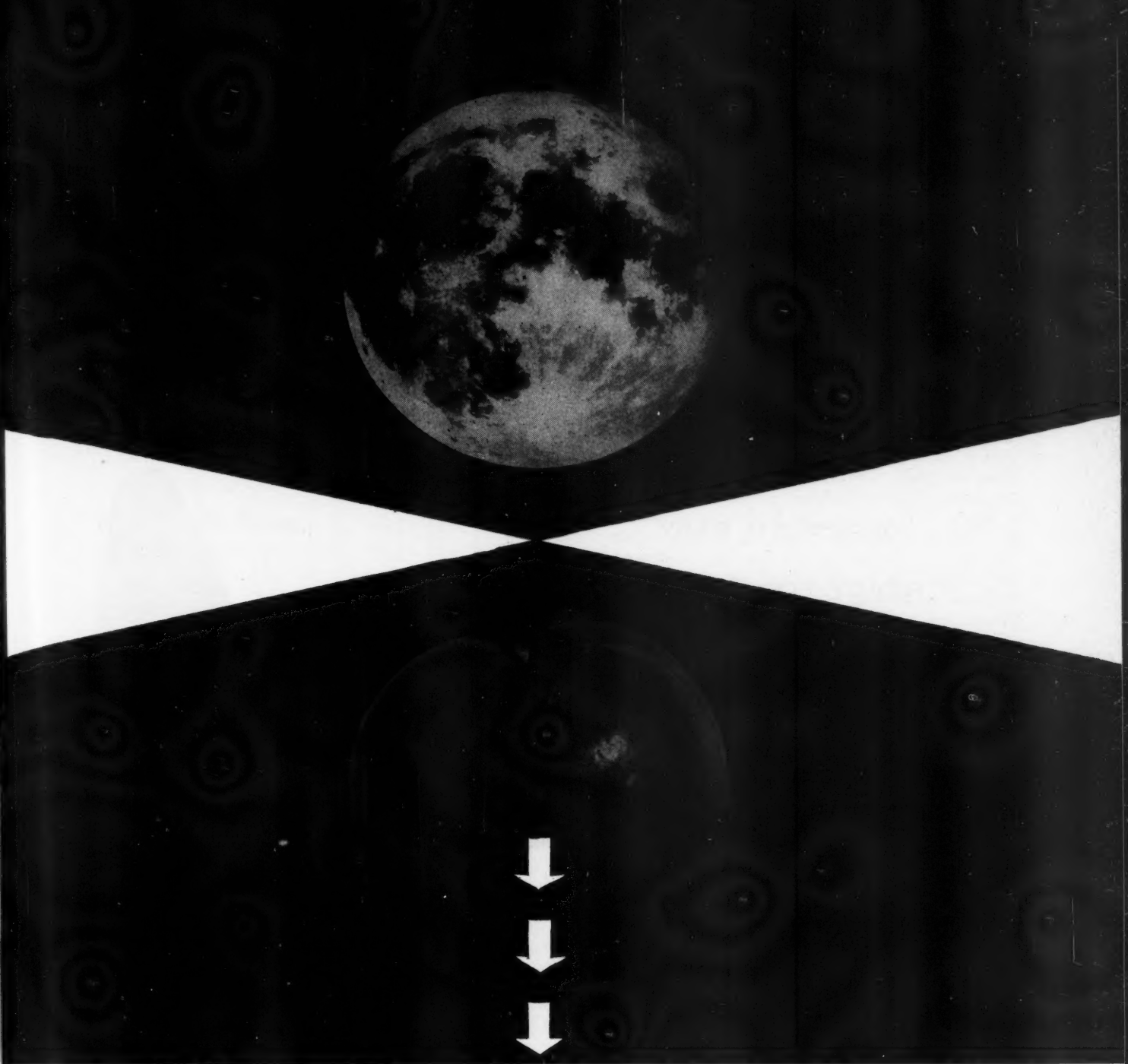
The pilot of a Pan-American airliner carrying twenty-six miscellaneous snakes noticed one of them on the loose over Ireland, of all places. A radio message warning London Airport to prepare for the worst brought forth a delegation from the Royal Society for the Prevention of Cruelty to Animals.

• • •

The latest aircraft to be honored with a berth in the Smithsonian Institution is the one-engine plane "Ole Miss," which flew into Washington for the event under her own power. Twenty years ago she remained aloft twenty-seven days to establish a world's record that has never been beaten. During that historic flight, made possible by 438 aerial refuelings, "Ole Miss" traveled a distance of more than two and a half times around the world.

• • •

The scheduled airlines of the United States operate 2,155 flights daily.—END



PROBLEM: GRAVITY

Interested in it? So are we!

For part of the work in advanced design at Martin includes an overall search into the basic laws of the universe—probing the unknown in every field that relates to airborne systems.

As a result of this far-reaching program of exploration—which includes the establishment of an independent laboratory for pure and advanced research—exciting new long-range developments have created exceptional opportunities at Martin on projects of the highest priority and importance.

Opportunities such as these are an engineer's dream!... If you are one of the many creative engineers who are lost in large organizations, anchored to static, non-creative jobs—ceiling zero, visibility zero—you'd do well to look into the Martin story.

MARTIN
BALTIMORE

SPEEDY NEW

TURBOPROP

DROPS 'EM EASY

READY FOR ACTION

USAF HERCULES

All the missions of the Tactical Air Command have one thing in common: urgency! Whatever the need, TAC must answer it *fast*. That's why *mobility* is so vital.

Suppose the call is for paratroops. USAF's new C-130 Hercules, built by Lockheed, is the ideal paratroop transport. Look how the Hercules provides paratroop mobility:

64 fully equipped paratroops can run aboard four abreast on the rear-door ramp. In minutes the Hercules is loaded.

Up goes the ramp and, with turboprop power, the Hercules is airborne in seconds.

Flying faster than most commercial transports, and with great range, the Hercules gets where the paratroops are needed in a hurry. Inside, each paratrooper has his own seat, 2 feet wide. The cabin is pressurized and air conditioned, minimizing in-flight fatigue.

Two special side doors at the rear of the Hercules were designed for easier troop dropping. An effective wind-stream deflector and a unique floor extension make paratroop drops easier, faster and safer.

USAF's Hercules is now in production at Government Aircraft Plant No. 6 at Marietta, Ga., America's first turboprop production line for transports.

GEORGIA DIVISION

LOCKHEED

AIRCRAFT CORPORATION

Marietta, Georgia

AN EDITORIAL

A Dangerous Calculated Risk?

By Gill Robb Wilson
PRESIDENT, AIR FORCE ASSOCIATION

AS THIS is being written, the question of exactly how much money the armed services are to be allowed to spend during the current fiscal year (FY 1956—July 1, 1955 to June 30, 1956) has not been decided. Or if it has, the decision has not been made public. However, out of the confusion and the conflicting statements in the press, certain facts appear to emerge:

- The Administration wants desperately to balance the budget during this fiscal year.
- The only place where reductions in spending, of the order needed to achieve this aim, could be made is in the Department of Defense.
- Some cuts in defense spending have been in the works from the very beginning. Estimated expenditures for FY 1956 were placed at $35.5 billion for Department of Defense last January, at which time Secretary Charles E. Wilson told the Congress that the Administration hoped to cut this figure by $1.75 billion.
- Of this $1.75 billion not more than $.75 billion could possibly be pinpointed as "housekeeping" economies.
- The remaining $1 billion would almost inevitably come out of compromises in our combat capabilities, in one way or another.
- If expenditures were to be cut in proportion to the services' share of the appropriations, the Air Force would have to shoulder the lion's share of the reductions.
- Reducing Defense Department expenditures even by $1.75 billion would not guarantee a balanced budget. The estimated deficit for this fiscal year originally was $2.4 billion. So another $1 billion would have to be lopped off to insure a comfortable margin, should revenues not come up to snuff.

At no point in the current discussions has there been any official talk of reducing the Air Force force level below the goal of 137 combat-ready wings to be achieved by July 1, 1957. As recently as September 11, Secretary of the Air Force Donald A. Quarles told a CBS television audience:

"Our objective is still to maintain our program intact as we presented it to the Congress."

At no point has any responsible government official said that there has been any lessening of the threat which our military establishment faces.

In Philadelphia, on September 2, Secretary Quarles also pointed out:

"It was the regard of the Communist world for the Free World's strength that led to Geneva, and it is only by maintaining this strength that we can follow up the developments at Geneva with concrete results." And on the same day, in conveying the greeting of President Eisenhower to the national encampment of the Veterans of Foreign Wars, Harold Stassen said, "The United States must maintain adequate strength for its own defense to help deter aggression by any other nation."

Our national dilemma, then, is this—Can we appreciably reduce military spending during the current fiscal year without taking more of a risk with our security than we were willing to accept when the original expenditure estimates were made public last January?

We of the Air Force Association, as citizens and taxpayers, endorse the principle of a balanced budget. But we must seriously question any proposal which would reduce the combat effectiveness of our Air Force at this juncture in world affairs. And we are unable to see in what areas cuts of the order being discussed could be made without serious effects on the build-up to our Commander-in-Chief's soundly conceived appraisal of 137 wings of combat-ready force as the minimum consistent with our national security.

At the very least, we believe that the Congress and the people of the United States are entitled to know the areas which will be affected should these expenditure reductions take place. Only through such knowledge can the electorate determine whether they are willing to undertake what may be an extremely dangerous venture into calculated risks of national security.

We have been assured that the number of wings in the program will not be tampered with. Such assurance, we feel, is not enough. For numbers alone are not a true measure of combat capability. As General Twining said last month, to the Veterans of Foreign Wars in Boston:

"In air warfare there is safety *only* in numbers that can be brought to bear against an aggressor.

"There is no safety in the numbers of aircraft that have been attacked and destroyed because they had no place to disperse.

"There is no safety in the numbers of aircraft sitting on the ground, needing repairs because we do not have enough skilled mechanics.

"Nor is there safety in numbers of aircraft caught on the ground because their crews were forced to live one or two hours away from the air base.

"The best aircraft in the world are useless without the trained people to maintain and fly them and without adequate airfields from which to fly them.

"Our problem for the future, then, is not merely to get increasing numbers of superior airplanes and air weapons. Planes and weapons are only one component of airpower. It looks like there will be even bigger problems in getting and keeping the men we need, and in building and maintaining the facilities we must have."

Every airman knows that these statements are true. And, if force levels are not to be tampered with, it seems logical to assume that the points discussed by General Twining are among the areas most likely to be affected by the proposed expenditure reductions.

Remember, we are not talking of reducing appropriations. We are speaking of *not spending* funds which have already been appropriated by the Congress, or of delaying the spending of these funds beyond the current fiscal year (see page 16).

How, then, do we *not* spend money already made available by the Congress? There are three principal ways, each of which involves a practical, if not always self-apparent, reduction of combat capability.

The first approach would be to reduce the number of combat-ready wings. This self-evident reduction is not

(Continued on following page)

proposed by the currently suggested expenditure cuts. The goal of 137 wings is still a firm military appraisal.

The second approach is to leave the number of 137 wings intact but to curtail their combat readiness by temporizing with the modernity of aircraft, numbers of trained personnel, air base and support installations and activities, research and development programs essential to future air supremacy, and all of the other factors which constitute a truly effective fighting force. It is most difficult to believe that cuts of the order now being discussed would not produce such an effect.

The third way to reduce military expenditures is one with which we are all too familiar. This is the expedient of delay—of postponing and stretching-out the date of achievement of essential programs. The currently talked-about cuts would almost inevitably bring this about.

The Congress, constitutionally appointed watchdog of the size and composition of our armed forces, has made these funds available through appropriations. The elected voice of the American people is entitled to assume that these moneys will be spent at a rate consistent with the state of the military art and the ability of suppliers to make deliveries. This does not presently appear to be the case.

The effect of administrative control of expenditures will have a further effect on our combat capability. The budget estimates for Fiscal Year 1957 are presently being firmed up in the Pentagon. The proposed cut in 1956 expenditures is cause enough for alarm. But even more worrisome is its inevitable result—a comparable slash in next year's budget requests.

Both kinds of cuts, we feel, would be radically inconsistent with our officially announced reliance on airpower as the key to our preparedness effort, and completely incompatible with concrete evidence of growing Russian strength in the air.

We are firmly convinced that the talked-about cut in expenditures, if imposed upon the Department of Defense, would seriously compromise the ability of the Air Force to do its job. We cannot understand how the proposed reductions could be made without such effects as postponing completion of our early warning system, cutting flying hours below the level essential to maintain flying safety and combat proficiency, further delays in development of our already inadequate air base facilities, a slowdown of critical research and development projects, and delays in vital modernization of our combat wings. These consideration would appear to involve a calculated risk to the safety of every man, woman and child in this nation. Certainly the least we can expect is to be told the degree and extent of the risk to which we are asked to expose ourselves.—END

Who Has the Power of the Purse?

By John F. Loosbrock MANAGING EDITOR, AIR FORCE MAGAZINE

THE current furor over cuts in defense spending has generated a good deal of heat but very little light. This is largely because the budget process is so complicated that few, even in government, really understand it. Hence, it would appear useful at this time to present some background information on the power of the purse in relation to the military establishment.

Constitutionally, the Congress of the United States is assigned the predominant role in the creation, maintenance, support, and regulation of the armed forces. In Article One, Section 8, the Congress is given power, among other things, to "provide for the common defence," to "raise and support armies," to "provide and maintain a navy," and to "make rules for the government and regulation of the land and naval forces."

To the Congress, therefore, was given the power to legislate the size and organization of the armed forces. But by far the strongest power given to Congress in its role of watchdog of the armed services is its control over the purse strings.

The Congress has the exclusive right to appropriate the funds needed to run the military establishment. The Constitution explicitly states that "No money shall be drawn from the treasury, but in consequence of appropriations made by law."

What is an appropriation, then? Essentially, it is the Congress giving the executive department permission to incur obligations legally binding upon the government of the United States and to draw money from the treasury to honor these obligations when they come due. The executive department cannot spend more money than the Congress has authorized.

Our founding fathers made this arrangement as a curb on the power of the Chief Executive, as insurance against a military dictatorship. It is still effective in preventing the Executive from spending more money, building larger military forces, or buying more equipment than the Congress is willing to provide. But it left an unforeseen loophole. For, while it is impossible for the executive department to build forces larger than authorized, it is quite possible to keep our military strength below what Congress thinks it should be by the simple expedient of not spending up to the authorized amount. This is the nub of the current debate, a situation brought about by the evolution of our budgetary processes.

Contrary to popular belief, the Congress does not really "pass a budget." The Congress legislates to raise revenue and to provide expenditure authority. The President estimates the government income for a given fiscal year by applying the authorized tax rates to an estimate of the tax sources. Then he estimates the payments likely to become due during the fiscal year against the obligations for which the Congress has appropriated specific sums or granted spending authority.

This estimate is the so-called President's Budget. It is actually only an educated guess as to the impact of certain legislative actions of the Congress on government revenues and expenditures during the fiscal year in question. At the time of the President's annual budget message, public attention usually focuses on this balance sheet—whether there is an estimated surplus or deficit, instead of on the President's request for new spending authority, which is the crux of the matter.

When weapons were rifles, swords, and simple cannon, most military equipment could be ordered, built, and paid

(Continued on page 19)

Peace Officer
ready for war

This man is a peace officer. His beat is the whole world, for he flies for TAC—the Tactical Air Forces of the U. S. Air Force.

Primary job of the Tactical Air Forces is to stamp out "brush fire" aggressions wherever they may occur. This is being accomplished by maintaining at combat readiness a completely self-contained striking force with a devastating nuclear punch, and a global reach.

Such a far-reaching assignment calls for versatility in men, equipment, techniques and weapons. Douglas is proud to have its planes included in the Tactical Air Command's inventory of fighters, bombers, transports and reconnaissance aircraft.

LONG-RANGE JET FOR TAC RECONNAISSANCE— DOUGLAS RB-66

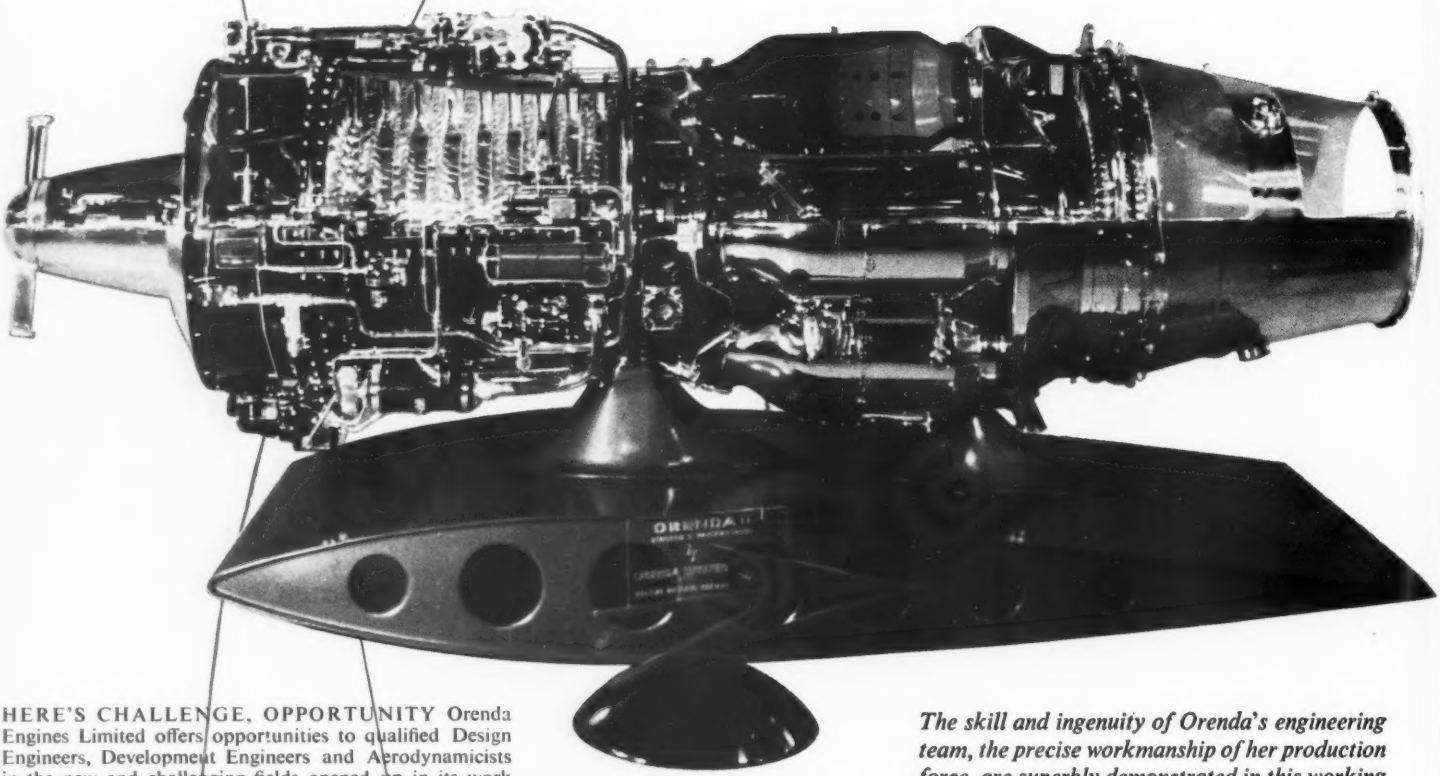
Defense is everybody's business

The Douglas RB-66 can fly 600-700 mph but not without people to pilot and service it. The Air Force needs young men and women who agree that "defense is everybody's business."

Depend on *DOUGLAS* **First in Aviation**

ORENDA

power going places



HERE'S CHALLENGE, OPPORTUNITY Orenda Engines Limited offers opportunities to qualified Design Engineers, Development Engineers and Aerodynamicists in the new and challenging fields opened up in its work on the propulsion equipment of tomorrow. Write today to:
Personnel Manager, Orenda Engines Limited,
P.O. Box 4015, Terminal "A", Toronto, Canada.

The skill and ingenuity of Orenda's engineering team, the precise workmanship of her production force, are superbly demonstrated in this working cutaway showpiece Orenda 11.

Main entrance to the plant where more than 2500 Orendas have been built in little over two and one half years.

In England, in Europe, in Canada, Orenda-powered Sabres and CF-100's of the Royal Canadian Air Force daily demonstrate leadership in their respective fields. Now Orenda Sabre 6's have been chosen for the South African Air Force "after giving consideration to all the best jet fighters now in production"—another tribute to Orenda power.

ORENDA
ENGINES LIMITED

MALTON • CANADA P.O. Box 4015, Terminal A, Toronto

A.V. ROE CANADA LIMITED—MEMBER, HAWKER SIDDELEY GROUP

for in the same year in which the appropriations for it were made. As a result appropriations were a fair guide to expenditures in a given fiscal year.

Now, however, aircraft, missiles, electronic equipment, and many other complex items take years to complete. They cannot be delivered until long after the contracts have been let or the appropriations for them have been granted. This delay we call "lead time." But regardless of the length of lead time, the government ordinarily does not contract for an item until Congress has appropriated the money for it. Therefore, a good deal of the money actually expended in any fiscal year has actually been appropriated earlier.

The lag between appropriations and expenditures varies. Appropriations for pay of personnel, for example, are usually spent in the same year in which they are granted. An appropriation for aircraft or missiles, on the other hand, may not be completely spent for two, three, or even four years and as little as ten percent of it may be spent in the fiscal year that it is granted.

This delay between appropriations (obligational authority) and expenditures normally escapes public notice, for when the size and composition of the armed forces are relatively stable, expenditures in any fiscal year are usually quite close to new appropriations.

The trouble begins when there is a sharp increase in military forces or when new (and expensive) weapons systems are coming into use. This is when the executive branch is tempted to utilize the lag between obligations and expenditures to usurp the power of the purse.

For instance, the decision to expand the Air Force to 143 wings was made in October 1951, during the Korean war. New spending authority to finance this increase was sought, and granted, for the following fiscal year—FY 1953. Only a small portion of this was actually spent in FY 1953, however. The big expenditures were to come in FY 1954 and FY 1955. Therefore, it was not necessary immediately to face the problem of finding more revenue (or of yielding to a higher deficit and greater national debt). That problem was postponed for one or two more years.

Such a situation presents an almost irresistible temptation to take credit for the authorized increase in the armed forces and to put off paying the piper.

Thus the new factors of increased lead time and delayed expenditures bear directly on the Congress's power of the purse. For the wishes of the Congress as to the size and composition of our armed forces can be expressed best through the granting or withholding of spending authority. Congress is entitled to assume that this authority will be faithfully exercised by the executive branch. That is, Congress ordinarily assumes that the obligations will be translated into expenditures as fast as is prudent and practicable. This is not always the case.

It is a strange phenomenon of the cold war that, as a rule, it has been the legislative, and not the executive, branch which has been most concerned over the inadequacy of our armed forces and which has wished to increase them. The Administration—under Republicans and Democrats alike—seemed primarily concerned with balancing the budget and lowering taxes—interests previously usually associated with Congress. Since the cold war began, the Congress has made only insignificant cuts in military appropriation requests.

In 1948 and 1949, just before Korea, we witnessed a strange spectacle indeed. The Congress, over the protests of President Truman, appropriated more money for the Air Force than the Administration asked for, or wanted to spend. Mr. Truman's action was as simple and direct as it was ill-advised. He merely forbade the Air Force to spend the money. This was the famous "impounding" incident.

The incident created a violent controversy between the executive and legislative branches but there appeared to be no constitutional grounds to force the executive branch to spend the appropriated funds. No one had foreseen the possibility that an Administration might want to spend less for defense than the Congress had deemed necessary.

For a number of reasons, the executive branch has become more circumspect in circumventing the Congressional power of the purse. For example, the famous stretch-out of the Fiscal Year 1953 program for the 143-wing Air Force was represented by the Administration as resulting from shortages of raw materials, unavailability of the right types of aircraft, and other factors presumably beyond government control.

In any case, there has been a growing tendency for the executive branch to regulate the effectiveness and composition of the armed forces by administrative control of expenditures, at a rate made convenient by fiscal and other considerations, rather than at the rate authorized by the Congress.

Here's how it works. Let us assume that the Congress authorizes procurement of 5,000 aircraft for the 137-wing program. It approves the necessary obligational authority. The aircraft are contracted for, and it is possible, with a little extra effort, to get delivery within eighteen months. This would mean that the bulk of the expenditures (actually payment of the bills) against these contracts would occur in the current and following fiscal year.

This could be inconvenient if you were trying to balance the budget. (Remember that this budget is not the President's estimate but the actual relation between income and expense in the fiscal year.) So you delay and stretch out deliveries so that the aircraft will be paid for over two or three years instead of eighteen months. You can always use the perfectly good argument that by waiting long enough you can buy more modern aircraft and forestall crash production programs—though this does not answer the problem of what to do should the nation have a desperate need for these aircraft in the meantime.

You have also attained a reputation for efficiency and economy, for the money you didn't have to spend by stretching out the delivery date can be represented as a "savings." If you "save" enough, your expenditures for the fiscal year equal or fall below your revenues and you have "balanced the budget." The only catch is that you may be caught without the aircraft when you need them.

Such "savings" have a tendency to pyramid. The fewer aircraft there are in the inventory, the fewer you have to buy to keep the force modern and the fewer flyers you need to man them. This means fewer flying hours and more "savings" in maintenance and operations funds.

The real danger in such administrative manipulations is not necessarily the fact that they occur. Control of expenditures is a legitimate executive function. The danger lies in the fact that it is not subjected to the kind of public scrutiny that accompanies decisions as to appropriations. Appropriations, since they involve legislative action, are publicly debated and publicly recorded. Manipulation of expenditures can occur without the people or the Congress becoming aware of its degree, extent, or precise effect upon our national defense.

Administrative usurpation of the power of the purse through control of expenditures is an ingenious device. It escapes public attention and often is not even apparent to the Congress, for few are expert enough in the budget process to detect it. It is a useful political expedient. But it is not good for the armed forces. And it is not good for the country.—END

RADAR THAT PUTS THE FINGER ON STORMS

Raytheon Storm Detector Radar, the AN/CPS-9, locates storms up to 300 miles away, measures their distance, direction, height—indicates the presence of rain or snow. Storm Detector Radar was developed by Raytheon in cooperation with Signal Corps engineers for use by all military services. The "3-dimensional" picture provided by this unit is invaluable to the quick, precise forecasting demanded by modern military operations.

Civilian applications of this equipment will supply vital information to commercial airlines, power utilities; more timely forecasts to the U. S. Weather Bureau. Reliable, accurate, versatile, the Storm Detector Radar demonstrates again that Raytheon means . . . "Excellence in Electronics."

RAYTHEON

RAYTHEON MANUFACTURING COMPANY

WALTHAM 54, MASSACHUSETTS

SHOOTING THE BREEZE

WITH JOHN F. LOOSBROCK, MANAGING EDITOR, AIR FORCE MAGAZINE

This happened in August but it was called to our attention only recently. Seems the Delaware National Guard ground forces had just been reviewed by the Governor and were standing at attention on a steaming August afternoon. A formation of Six F-86s from the Delaware Air Guard flew by twice, in salute to the Governor and to the sweltering soldiers. On a third pass a voice from one of the planes boomed out over the speaker of a brand new Air Guard mobile transmitter:

"All able-bodied young men are invited to join the Delaware Air National Guard! Join the Delaware Air National Guard and enjoy the air-conditioned planes up here, where it's nice and cool and . . ."

At this point a ground Guard sergeant pulled the plug on the loudspeaker.

☆

Quite frequently we receive a letter from one of our members with the complaint that he has just received a letter asking him to join AFA when he has been a member for years. The explanation is quite simple and perhaps an airing here may forestall some of these complaints in the future. Very often, when soliciting new members, we work from large lists. It is impossible to check every name against our files to weed out those who are already members. So we mail to everyone on the list, assuming that those who are members will pass along the information to a friend. So don't be mad with us. It's accepted procedure in the publishing business.

Lindbergh? Nope, it's Jimmy Stewart who plays the lead in Warner Brothers' upcoming film "Spirit of St. Louis." The photo's in Paris, where arrival scenes were filmed.

We hate to use a Navy plane for Breezecake but we felt the model's lines more than made up for what might be interpreted as momentary disloyalty. Her name is Anne Gordon, and, says the caption, she is giving "a willing hand to the painters at Douglas El Segundo Division where carrier aircraft are being painted light gray and white for better camouflage protection." The plane is an AD Skyraider.

☆

Navy Bureau of Aeronautics plant representatives with the aviation industry are familiarly known as BARs. Hence it was mildly amusing to note a recent item in *American Aviation Daily*, to wit: "Commander David Crockett has been named assistant BuAer representative in the North American Aviation Columbus Division's plant, under Captain R. M. Gibbons, local BAR." King of the Wild Sea Frontier, no doubt.

☆

Beirne Lay, Jr., is writing another Air Force film. This one will be called "Flight Line Chief" and will mark Beirne's debut as producer-writer at Warner Brothers. The film will feature SAC's new B-52s.

☆

Air Force journalism is the poorer for the folding of *Air Training* magazine, official organ of the Air Training Command. Slanted to the basic airman, the magazine did a splendid job of internal public relations and its passing is noted with regret. We understand it was not money but a lack of trained personnel that caused the demise.

☆

When we were preparing for the V-J Day Memorial Services at the Convention, we called the Navy for the home address of Fleet Admiral Chester W. Nimitz. A junior officer on the other end of the horn asked, "How do you spell Nimitz?" Which proved to the office wag that even in the Navy fame is fleeting.—END

FAIRCHILD
ASSAULT TEAM IN ACTION!
When the order is for "advance base support"— Fairchild-built military air transports now deliver men and supplies wherever needed.
The famous C-119 *Flying Boxcar* air-drops fully-equipped troops and materiel in advanced areas. Combat-proven in intense heat and extreme cold, the Fairchild C-119 has an outstanding record for dependability and safety — under all flying conditions.
The Fairchild-built C-123 assault transport air-lands men and vital equipment on unprepared advance bases. Taking off and landing in short areas, the C-123 is engineered for rigorous operation — with maximum personnel protection.
This is assault teamwork — perfectly balanced — to meet the military air needs of our Armed Forces.
"where the future is measured in light-years"
21627
ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
HAGERSTOWN, MARYLAND
Other Divisions:
American Helicopter Division, Manhattan Beach, Calif.
Engine Division, Deer Park, L. I., N. Y.
Guided Missiles Division, Wyandanch, N. Y.
Kinetics Division, New York, N. Y.
Speed Control Division, St. Augustine, Fla.
Stratos Division, Bay Shore, N. Y.
Enlist to fly
in the
U. S. Air Force

AIR FORCE
OCTOBER 1955

FOR THE RECORD

What happened in San Francisco

This is a special issue of Air Force *Magazine, devoted almost entirely to coverage of the Air Force Association's Ninth Annual Convention, held this year in San Francisco, August 9-14. In this issue we have added a number of extra pages in order that we might devote as much space as possible to the Convention. Even so, we find we haven't been able to include every event in the kind of detailed coverage we would like to have given. On the other hand, we feel our "saturation" coverage of the major events makes this issue a significant document of lasting value. We had two purposes in mind with this sort of coverage. One was to provide a permanent record of the Convention for those of our readers who were in San Francisco. The other was to fill-in those who weren't able to be with us. The Convention itself was the biggest and, judging from all accounts, the best AFA has ever held. We hope this issue of* Air Force *may convey some idea of the impact of AFA's yearly meeting.—The Editors.*

★ AFA's 1955 st

AS THE Free World looks to Geneva with hope, we must look to the skies over Moscow with concern.

While people and nations cry out for disarmament, nuclear stockpiles grow and the production of new air weapons increases in pace.

There is no concrete evidence that Soviet Russia has abandoned its goal of world domination.

Communism's thirty-five-year history of broken promises continues, as exemplified in North Korea where an unabated military build-up is taking place in flagrant violation of the Korean armistice.

The new jets over Moscow dramatize the fact that our leaders have repeatedly underestimated Russia's ability to produce adequate instruments for modern war.

Our leaders should have been prepared for the Soviet's aerial parade on May Day through adequate intelligence, our people through adequate release of information. This has been lacking in both cases. Our leaders must keep our citizens continually informed on the nature and scope of our security problem.

Our people must recognize, once and for all, that while Soviet Russia cajoles millions to believe it is sincerely struggling for world peace, Soviet Russia continues its program of propaganda and subversion while relentlessly building a massive base of power presumably designed for world conquest.

In our fervent hopes for peace, we must not be lulled to sleep by such hopes, or by the Soviet's exploitation of them.

We must not forget Lenin's statement:

"The concessions which we grant, which we are forced to grant, are the continuation of war in another form, by other means.... It would be a great mistake to believe that a peaceful agreement about concessions is a peaceful agreement with capitalism. It is an agreement concerning war."

Power and only power can hope to alter Soviet Russia's drive for world domination. Weakness can only lead to war. Only strength can lead to peace.

In the years since World War II, American airpower has kept the Free World free. But as Soviet Russia proceeds in its rapid development of guided missiles and other modern weapons of war, our presumed position of relative air strength can be dangerously temporary.

Nor can we find solace in the belief, sometimes hopefully advanced, that modern weapons make war impossible. Given modern weapons and the advantage of initiating surprise attack, one nation can paralyze and conquer other nations without undue risk to itself.

Massive retaliation, as a deterrent to war, as a hope for survival, is steadily becoming obsolete. There can be no practical retaliation, after an all-out surprise attack with thermonuclear weapons, which destroys military bases simultaneously with centers of industry and population.

The United States is on record before the world that it will not strike unless we or our allies are first attacked. This assures the aggressor that he will have the initiative any time he chooses to exercise it.

History shows that Communists have no compunction against striking first and without warning. The Korean war once again proved the point. During the past year the advantages of surprise attack have been repeatedly discussed in Soviet publications.

Under present conditions the ability to maintain undisputed command of the air is the only sure way to prevent war or even insure our own survival as a free nation. Yet, for the first time since World War II, even our ability to produce superior air weapons has been challenged by the Soviet Union.

Our government has increased the production schedule for heavy bombers and supersonic fighters. But we question whether this increase is large enough or fast enough.

Statement of Policy

Unanimously adopted by the delegates to the Air Force Association's Ninth Annual Convention, on August 13, 1955, in San Francisco, California

We are also concerned that present plans call for these increases to be achieved with little or no addition to Air Force appropriations for the maintenance, operation, and support of these aircraft.

Step-ups in aircraft production without proportionate increases in the supporting establishment, including bases and trained men, do not result in greater combat strength. When war with modern weapons once begins, it is too late to start training crews and maintenance men or constructing bases. Even now, numbers of our newest aircraft are in temporary storage because of a shortage of trained personnel to maintain them.

As to the future, we are even more concerned. Our own development programs proceed on a "business-as-usual" basis. The Soviets, who are educating more scientists each year than we, proceed in their development of more advanced weapons for conquest, including intercontinental ballistic missiles. When this missile becomes an operational reality, it will be possible to destroy entire nations in a calculated and precise manner without undue risk to the aggressor.

That aggressor could only be Soviet Russia. And we can assume that Soviet Russia is equal to or ahead of us in the development of ballistic missiles.

As the arms race progresses, Soviet bargaining power among nations can become uncontestable, and the Soviet threat to our own survival can become unbearable.

These frightening possibilities must be understood by the people of the Free World and by their leaders.

Soviet Russia cannot be permitted to make a surprise attack upon us. We must have the ability and the determination to apply our airpower the instant active aggression becomes evident on the part of the Soviet Union.

Nor can we permit Soviet Russia to continue to hold the military initiative. A year ago the Air Force Association urged, in the interest of both peace and freedom, "that the line of aggression must be drawn and the issue joined." We repeat this warning. The whole world—allies, neutral, and enemies alike—remains in doubt as to our will to react to aggression.

We must exploit whatever temporary advantage we may presume to have in the weapons race by assuming the diplomatic initiative. Throughout the nine-year history of this Association we have argued that our airpower be used as a basic instrument of national policy. We applaud the bold and imaginative diplomacy displayed at Geneva by our President in his proposal for mutual aerial inspection.

However, we cannot permit the rosy clouds over Geneva to overshadow the ominous clouds of new aerial weapons over Moscow.

While there is still time, we must convince Soviet Russia that we are willing to take risks for world peace; that a free interchange of information and people between all nations is essential to world security; that the world air spaces must be free to the people of all nations.

Military and civil defense agencies which have not accommodated themselves to the aircraft threat, much less the missile threat, must be vitalized and reorganized. Obsolete ideas as well as weapons should be abandoned.

We must establish an entirely new tempo for military preparedness. We must maintain a force in being, capable of defeating any power or coalition of powers which may be used against us. Accelerated programs must become the order of the day. Such programs, adequately financed without diverting funds from present essential programs, must encompass intelligence, intercontinental ballistic missiles, and counter-missile measures.

Weighed against the massiveness of the threat and the avowed intentions of Soviet Russia, these are minimum requirements for survival.—END

Here's what went on in . . .

SAN FRANCISCO—for one week Airpower Capital of the World

This is one you shouldn't have missed—by far the biggest and best Air Force Association Convention and Reunion to date

THE WORLD looked good from the top of Nob Hill. San Francisco—the setting for the Air Force Association's Ninth Annual National Convention—is generally considered one of the world's most beautiful cities. Those attending from less favored—weather-wise—areas, found the crisp, clear air refreshing and stimulating.

The Summit Conference at Geneva was already history when the 1,732 AFA registrants checked in. The phenomenon of smiling Russians had cast a hypnotic spell over the peace-loving nations of the world. Those hoping desperately for peace found it easy to believe that the international air, like the air in San Francisco, had a clearer quality to it.

So the delegates and dignitaries attending AFA's Convention—a representative cross-section of America—couldn't have been blamed for sharing the nation's optimism.

But they soon proved their feet were firmly on the ground. In its annual Statement of Policy, AFA congratulated President Eisenhower for his "bold and imaginative diplomacy" at Geneva. "However," the statement continued, "we cannot permit the rosy clouds over Geneva to overshadow the ominous clouds of new aerial weapons over Moscow."

That sobering thought was evident in the serious tone of the six-day Convention. The nation was warned to keep its guard up and not be lulled to sleep by Russian showmanship. As it has in past years, AFA again insisted that "power—and only power—can hope to alter Soviet Russia's drive for world domination. Weakness can only lead to war. Only strength can lead to peace."

The Convention got underway on Tuesday, August 9, with a Golden Gate Golf Tournament. The next five days were tightly scheduled, as in past years, with a Reserve Forces Clinic, Airpower Symposium, business sessions, the Airpower Banquet, Wing Ding Ball, and Airpower Brunch.

On Wednesday, the Reserve and Air Guard types met for the Reserve Forces Clinic. An imposing list of speakers had been assembled by AFA to give a report on the Reserve forces (see page 100).

That night, Convention-goers were treated to the world premier of Warner Brothers' new film. "The McConnell Story." The picture is a biography of Capt. Joseph McConnell, triple jet ace and test pilot who was killed in the crash of a jet fighter last year when the picture was half finished. The story has a special meaning for AFA because Captain McConnell attended the AFA Convention in Washington two years ago and is well-remembered by those who were there. Gen. Otto P. Weyland, Commander of the Tactical Air Command, presents the foreword to the film.

The event attracted nation-wide attention and was spotlighted on Steve Allen's show "Tonight" over the NBC television network. "The premiere is being held in conjunction with the Ninth Annual Convention of the Air Force Association," Allen told his millions of viewers. "It's a good picture, the story of one American and his family, one fellow who took part in the defense of this country. The Air Force Association is representative of all the families who have given one or more of their members to the endeavor of keeping America free, and I think that we all realize that airpower today is the most important factor in our American peace plan."

Part of the NBC program was devoted to on-the-spot interviews of Hollywood stars, and the AFA and Air Force officials who attended the premiere (see page 64).

Certainly the aviation industry looked upon the Convention as an important event. A total of 137 companies sent 625 representatives to San Francisco. These included thirty-seven presidents, eighty vice presidents, and eleven general managers. Two briefings for industry—one by the Air Research and Development Command, the other by the Air Materiel Command—were held in conjunction with the Convention. Also, as part of the closer relationship between AFA and the aviation industry, the Association sponsored a huge Airpower Panorama in the Civic Auditorium. $100,000,000-worth of aviation equipment, representing both the Air Force and the aviation industry, was on display.

Industry had its day on Thursday. Even though the briefings were closed to all except those with proper security clearances, the events of the day resulted in front-page stories throughout the country. The San Francisco *Chronicle* headlined a story on a press conference with Trevor Gardner, Assistant Secretary of the AF, and the speech by Dr. H. Guyford Stever, Chief Scientist of the USAF. According to Gardner, the AF was planning to ask Congress for an extra $100 million to exploit a breakthrough that had occurred in secret research. He declined to say in what area the breakthrough had occurred, but on the same day, Gen. Edwin W. Rawlings, Commander of the Air Materiel Command, and Lt. Gen. Thomas S. Power, Commander of the Air Research and Development Command, said that the Air Force was making progress on a nuclear-powered bomber. At the same time, a chemically powered bomber is also being developed, according to General Power.

Dr. Stever (see page 74) told a luncheon audience at the Mark Hopkins Hotel that "most experts conclude we have already lost the engineering manpower battle" to the Soviet Union. He warned that the race for future technical superiority would be lost unless we "improve our educational system."

By touching on a subject dear to the hearts of all—the weather—Dr. Edward Teller, professor of Nuclear Physics at the University of California, created a flurry in the press. Speaking before the Reserve Forces Luncheon, Doctor Teller hinted that man may soon be able to accurately predict—and maybe even control—the weather (see page 76).

The Omaha *World-Herald* took a dim view, editorially, of Dr. Teller's prediction. Suppose that scientists could control the weather, they said. "This obviously would be a government, and probably a world-government function." Since politicians would try to handle matters to please everybody, the weather would be the same every day "with showers by night, without frost or snow or hail or hurricanes from now to eternity. The dulcet, deadly monotony would be interrupted only on the rarest occasions—as, it may be surmised, when the opposition political party was planning a picnic."

(Continued on following page)

Official AFA business began on Thursday with the keynote address by Virgil M. Pinkley, editor and publisher of the Los Angeles *Mirror-News* (see page 29). Of the forty-two resolutions passed by the delegates in subsequent business meetings, only nine dealt directly with AFA. The others were devoted to Reserve and national affairs.

Briefly, here is the gist of the Association's stand on various issues:

- Congress was urged to support legislation creating "a just and equitable" survivor benefit program for dependents of servicemen and Reservists.
- The executive and legislative branches of the government were requested to take action required to provide adequate housing for AF families.
- Full support was given to the military construction requirements of the AF.
- In light of the alarming qualitative and quantitative improvement of the military strength of the Soviet Union, AFA urged a reappraisal of the existing force goal for the USAF.
- Believing the greater effort should be expended in attracting good men for the AF, the delegates favored an increased proportion of the AF budget to expand the recruiting organization.
- A vigorous educational effort was launched at both the local and national levels to convince the public that Post Exchange and Commissary programs should be restored to the standards of values and selections enjoyed by service families when they originally entered the service.
- Because medical care for military personnel and their dependents is now inadequate, the delegates asked Congress to take prompt action to provide adequate care and facilities and also to defray medical and dental expenses of personnel and their dependents in situations where Defense Department facilities are non-existent or inadequate.
- In two resolutions which caused a good deal of editorial comment—both pro and con—in the nation's press, the delegates asked that the Air Force take steps to void the court-martial proceedings against Col. William "Billy" Mitchell, and also that Congress promote him posthumously to the rank of General of the Air Force in recognition of his role in bringing about an acceptance of airpower.
- Because modern weapons impose greater responsibilities upon USAF officers than ever before, the delegates asked all members of AFA to inform and arouse the interest of outstanding young men in their communities regarding entrance at the USAF Academy. They also requested that the Academy supply speakers, where possible, to explain admission procedures to interested youth groups.
- In the interest of aviation education, the delegates urged the AF to authorize and direct military aircraft participation in aviation days, air fairs, and other programs at airports where the best interests of aviation are paramount.
- One of the AFA's 1954 resolutions had asked the AF to establish a plan allowing secondary schools to give military training using AF materials, but providing instruction and maintenance at no cost to the AF. Since no such plan has been established, the delegates again urged that such a program be set up.
- Because of the great need for airfields in peace as well as in wartime, the Association urged that: municipalities with populations of 5,000 or more erect and maintain one airfield and one auxiliary airfield; and that cities larger than 100,000 erect and maintain not less than two major airfields, plus one auxiliary field for each additional 25,000 population.
- The delegates felt that building radio and television towers in the vicinity of airports endangers public life and property, and they urged federal legislation making it mandatory for the CAA and the FCC to uphold objections to such erections by aeronautical authorities within the individual states. They further asked that when a tower is granted approval by the FCC, proper authorities be notified immediately so the information can be published on Federal Aeronautical Charts before building begins.
- Denouncing the groups who are trying to influence our government to halt nuclear weapons research and development, the delegates urged a policy of energetic pursuance of research and development of nuclear weapons for defense. They also urged appropriate agencies of the government to disseminate and publicize suitable factual information about nuclear weapons test.
- The delegates asked that members of the WASP in World War II be given credit toward promotion and retirement for such time served.

As the San Francisco Convention drew to a close, most persons agreed that it was the biggest and best in the history of AFA. And, judging from editorial reaction, its impact was felt throughout the US. Marvin Miles, aviation editor of the Los Angeles *Times*, said in his "Skyways" column of Sunday, August 21: "We were especially impressed with AFA at this Convention. The organization has matured a great deal in recent years and is in a position to do a great deal for airpower—a responsibility it has accepted with boundless enthusiasm."

The Portland *Oregonian* said: "This lusty and still-growing organization, backed by the grass-roots power of local units all over the nation, henceforth will have great influence in the shaping of America's military picture." It continued, "AFA is young, vigorous and full of burning zeal. Its leaders wisely have avoided any dilution of its influence by steering clear of political or social issues."

According to the Boston *Traveler*, "The Air Force Association closed its Convention in San Francisco on a note of good advice and sensible recommendations." It called attention both to the V-J Day Anniversary speech by Admiral Nimitz, in which he urged the nation to remain strong, and the resolutions adopted warning that the US consistently underestimates Russia's ability to attack. In conclusion, the editorial said: "It gives us a better feeling of security, therefore, to hear the Air Force Association discussing such points, and to know that its opinions are backed up by a strong body of veterans and servicemen."

And according to the San Francisco *Call-Bulletin*, AFA "is playing an important role in keeping the whole world at peace." The editorial went on to say that "American airpower is what it is today to a large degree because of the constant efforts of the Association to awaken everyone to the vital importance of air supremacy." Referring to the threat of rapidly increasing Soviet airpower, the editorial said, "The work of the Air Force Association in calling attention to this danger, and in striving to keep American air strength up to par, thus is not only a protection for the people of the United States, but for the peace of the world as well."—END

Keynote Address

THE GREATEST DANGER

VIRGIL PINKLEY

Editor and Publisher,
Los Angeles Mirror-News

IT HAS been my very great privilege to have seen a tremendous amount of aviation, both military and civilian, during the last quarter century. I saw some of the raids carried out by the Italians in Ethiopia. I observed aerial warfare in Spain during the civil war. I was in London during World War II plus North Africa and on the Continent and then later out in the Far East. It has been my opportunity to have observed and enjoyed many of the advantages made in commercial aviation. So, whenever I have the opportunity to write anything or say anything in my broadcast, or to address groups to render some assistance to the very great necessary task to which you are dedicated, I am delighted to have that privilege and opportunity.

You have scientists at this Convention. You have military experts; so not being a scientist, and not being a military expert, but a newspaper reporter, I thought I'd simply pass on some observations of recent trips and perhaps help you a little bit in your thinking to try and come up with right decisions and answers to some of the momentous problems confronting us.

All of us, of course, are wondering what the Russian game is. I do not want to oversimplify this situation, but I think it accurate to say that in the world today there are just two powers that can wage global war—we head up the free nations; Russia bosses the slave states of the world. If war is to come again, there are just two major considerations—nuclear weapons and the ability to deliver them. Therefore, the problem is not too difficult, but rather simple: two powers, one medium overshadowing all else, and one arm to take it there.

These recent maneuvers of Russia have puzzled many people. I don't think anyone knows the answer, but I do think that we can read into the history of this regime which has been in power without interruption since 1917 three or four basic objectives. In the first place, Russia is determined by any means possible to induce us to cut down on our production of nuclear weapons. Secondly, they are determined to induce us some way, somehow, to reduce the strength, the effectiveness of our air forces and, especially, our Strategic Air Command. They are determined to try and eliminate the power of NATO. They are resolved to keep Germany neutral and to try and bring about this status by promising unification of East and West Germany. When you analyze all these objectives, they get back to one thing—the respect and fear of airpower. Winston Churchill has been saying for years, and so have many other great leaders, one single great deterrent to World War III is the power and force of the American Air Force and our ability to produce vast quantities of nuclear

(Continued on following page)

Keynoter Virgil Pinkley with Convention Chairman Tom Stack. Below, artist's impression of one of the Convention's four business sessions.

Above, the delegates begin taking their places at a business session as the Ninth Annual AFA Convention gets under way.

THE GREATEST DANGER — CONTINUED

weapons. That is just as true today as it was the moment that statement was first uttered.

The Russians are fearful of NATO. And why? Very briefly, three and a half years ago we had in NATO something like six and a half divisions, only one of them fully mechanized. Three and a half years ago we had approximately—I say "we" meaning the United States and other members of NATO—had approximately one thousand planes in Western Europe, most of them "cats" and "dogs" of World War II days, propeller-driven craft. Three and a half years ago we had in Western Europe only fifteen bases that were operational for jet aircraft. While we haven't accomplished everything we would like to achieve in NATO, I think it would be a mistake to underestimate and underrate what we have accomplished.

Briefly, what has taken place during these last three and a half years? Our divisions have gone from some six and a half divisions to approximately twenty-five or thirty actually in being, with another twenty-five or thirty in reserve and being trained. Our Air Force has grown from less than a thousand old planes to approximately five thousand jet aircraft. Air bases have grown from fifteen in number to the figure given me by Gen. Lauris Norstad in Paris several months ago—138 operational bases in Western Europe. Being built and under construction are some twenty more, so that today we have constructed a gigantic arc around Western and Central and Southern Russia of these air bases. So, with the flexibility of airpower, if need be we can mass our forces on any one sector of this great arc. We can employ more fully and more effectively one of the great assets of airpower, flexibility, than we could before we had these bases. We are building some three thousand miles of pipe line to carry jet fuel from the channel port to these forward areas. So the picture has changed tremendously.

Now Russia today has, according to Gen. Alfred Gruenther, the SHAPE commander, about 180 fully mobilized divisions. There are seventy to eighty more mobilized divisions in the satellite states. Russia and the slave states have driven a spearhead into Western Europe up to the point of Berlin. I think Russia's fear is not so much the rather small ground forces we have there; I think they fear and respect the air forces we have and the bases that we possess, because on the flanks of the gigantic spearhead being driven we have power to retaliate and, if need be, to virtually destroy Russia.

In military parlance we used to talk about invading and occupying the enemy. These terms are rendered obsolete today because first-class formidable military powers such as ourselves and the Russians have ability not only to invade and occupy, but to destroy, and virtually destroy totally and completely. It has been said by the Chief of Staff of the Air Force and also by Admiral Radford, Chairman of the Joint Chiefs of Staff, that our air forces today are able to deliver ten times the destruction that any nation has ever received and to do that very quickly and very effectively provided we maintain our present air strength.

I think the greatest danger facing this country today—and I think it is in the greatest peril of any time since World War II—is that we will buy part of this phony Russian peace proposition. That's the great danger; that we let down. Because Russia is trying to gain time to become more

equal with ourselves in the air, trying to gain time to solve some of the problems behind the Iron Curtain. They have a tremendous problem in agriculture, for example. The population in the last fifteen years has increased about twenty percent, but agricultural production has only gone up by five percent. Russia today has far less meat and dairy products than ten or twelve years ago. Stalin tried to force all the farmers into these collective organizations, and many farmers, being like farmers all over the the world, destroyed their herds rather than turn them over to the state. So the Russian today is less well fed and he has a much more limited and restricted diet than ten or twelve years ago.

There are growing problems behind the Iron Curtain. That is not to say a revolution might break out tomorrow or be successful if it did, but very great problems; and, therefore, the Russians are playing for time, and despite wearing ten-gallon cowboy hats, the broad smiles exhibited here in San Francisco during the United Nations meeting, the parties at Lakeside with a rowing race on the lake, and all the yodeling at the Summit, not one single bit of evidence has been shown thus far that the Russian military has cut down its production of aircraft, or that Russia is cutting down on training pilots and building up even more formidable military forces. I think the reaction of Premier Bulganin in rejecting the proposal made by President Eisenhower is to be expected. I think the Russians are conducting a tremendous propaganda game. They do it very cleverly and astutely and far better than we. Let's face it. We've done the world's worst job of telling the world's best story; the Russians have done the world's best job of telling the world's worst story—not in this country, but in countries abroad and elsewhere. So the Russians are working to try and gain this time to cut down our air lead. The proposed NATO set-up with Germany coming in, as General Gruenther told us, changed the whole picture, and psychologically the Russians fear the Germans more than us. This is confirmed opinion by General Gruenther and Viscount Field Marshal Montgomery, Deputy Commander, SHAPE. And they fear even more the eventual twelve divisions the Germans will contribute as a tactical air force.

The Germans are expected within three years to have a tactical air force numbering in personnel some 80,000. They are expected to have about twenty wings. Each one of the wings will be placed on a different air base in Germany—twenty operational bases with modern jet wings. These wings are to be equipped with American and British aircraft. Russia knows our friends, the British, are embarked on a program of training long-range bombers. They are at work to build up minimum front-line fighter defense of the latest type jet aircraft of not less than 1,000 planes. The Russians are well aware that we and our allies, chiefly Great Britain and Canada, are continuing to develop our air efficiency and our air arm. Russia is attempting to do one thing and that is to try and reduce the effectiveness of American airpower. That is their primary objective. It will continue to be their primary objective.

I think it is a mistake to overestimate your adversary and almost as dangerous to underestimate an adversary. General Gruenther puts it very well: Most people in this country think all Russians are nine feet tall, but the closer you get to Russia the more you realize they are not any taller than Americans or any other race. On the other hand, it would be a mistake to think the Russians are not advanced in technology and in their research and aircraft designs, because I believe it was estimated that it would take Russia six or seven years to duplicate our B-29 and they did it in about two years—one-third of the time. Two years ago over Red Square we saw the medium jet bomber developed by Russia. Last year they brought out a long-range heavy bomber. This year they exhibited more of these bombers in display over Red Square. So for the first time in the history of this country and our neighbor to the north, Canada, our population and the industrial areas are vulnerable to air attack from an enemy. I think the most costly thing this nation can do is to go back into that very foolish policy of feast or famine for our military.

At the end of World War II, as most of you know, we dismantled much of our aircraft industry. We cut down our military very drastically. Russia did not cut back on its military, and in the aviation industry and in their air force they have augmented and stepped it up many times and are spending more money today and devoting more material, more manpower, more industrial output on aviation than at any time in the history of Russia. The menace is still there and it will continue as long as they have a group of men who are determined and who are bent eventually on world conquest. Now, as the Russians meet a roadblock to the right, they back up and try a new tactic. If they meet a block to the left, they back up and take another tack. But they get right back on the main road sooner or later to world conquest.

Before the second World War, I used to speak with American representatives in various parts of Germany and I would say, "Have you read Hitler's *Mein Kampf?*", and I only found one out of ten who had. There was the whole Nazi program spelled out and blueprinted and very easy to understand. Now the Germans at times had to back away from the program but came back to it in the final analysis. What Russia is up to has been spelled out time and time again in official statements, speeches, writings, notes. It is not a difficult conclusion to reach, what their goal is. The only nation on earth that can prevent her is the United States of America with adequate airpower.

When I was out in the western desert when the Eighth Army was first activated, the top commander in the field—he was then "Sir" not "Viscount"—was Montgomery. I recall very well some of the newspaper correspondents, including myself, protesting about the number of Stuka bombers coming over, but Monty said, "Bombers? Bah! Hitler has lost the war. Any time the German high command diverts manpower and material into flying machines instead of to the kings and queens of battle, the artillery, infantry. The only way to beat the Jerry is to go in and drag them out one by one by the heels. They are never going to win the war with airpower." Yet today Montgomery is probably the most ardent advocate of airpower. He has said he would prefer more air wings on the continent of Western Europe and fewer land divisions. He has said publicly that to try and prevent high-flying jet bombers coming in at speeds in excess of 600 miles an hour at heights all the way from forty to seventy thousand, to try to stop this type of assault is like trying to hold an ocean back with a picket fence. Monty has said that all capital ships should no longer be built and battleships should be done away with, and large cruisers and destroyers are obsolete. This is the same Montgomery who some ten or twelve years ago was saying, "Flying machines, bah!" He learned the hard way.

There was not a single battle fought in World War II, whether land attack, sea battle, or amphibious operation, that wasn't prepared carefully first by airpower, that wasn't launched under covering airpower, that wasn't assisted by airpower. Many people give credit to the removal of the people off the beaches of Dunkerque to

(Continued on following page)

the British Navy. The British Navy did a magnificent job and the little ships were gallant. What happened, in retrospect, everyone will agree, is that the British were able to get over to the beach at Dunkerque, could ride over the Channel and back because of air superiority gained. I think World War II proved time and again that once you had air superiority you could win, and you cannot win unless you have air superiority—everything else becomes secondary.

Airpower is by all means the dominant, paramount power in the world today. You men and women have done a remarkable job to date.

With your permission I would like to make several suggestions. I believe you have some 40,000 or 50,000 members. This means you have about a hundred members to every member in Congress. The day before yesterday Chief Justice Earl Warren was in my office for an hour and a half and made several statements. The first statement was that public opinion can bring about almost anything in this country. If the public is accurately informed from a source they trust, the public can be relied upon to do the right thing at the ballot box just the same as the jury system will function in the best interests of justice. You have an opportunity to do even a better job of publicizing the necessity of airpower and especially during this next period of six months to two years when we're going to have all kinds of pressure brought to bear to cut down defense, balance the budget, reduce taxes and take it out of the military because of the sweet smiling countenances the Russians are giving the world today. If we had to fight up to this time, we've got to fight twice as hard in the immediate weeks and months ahead. If the men and women associated with the Air Force Association would make it a permanent assignment to work on his or her Congressman most effectively, you can make a big step forward.

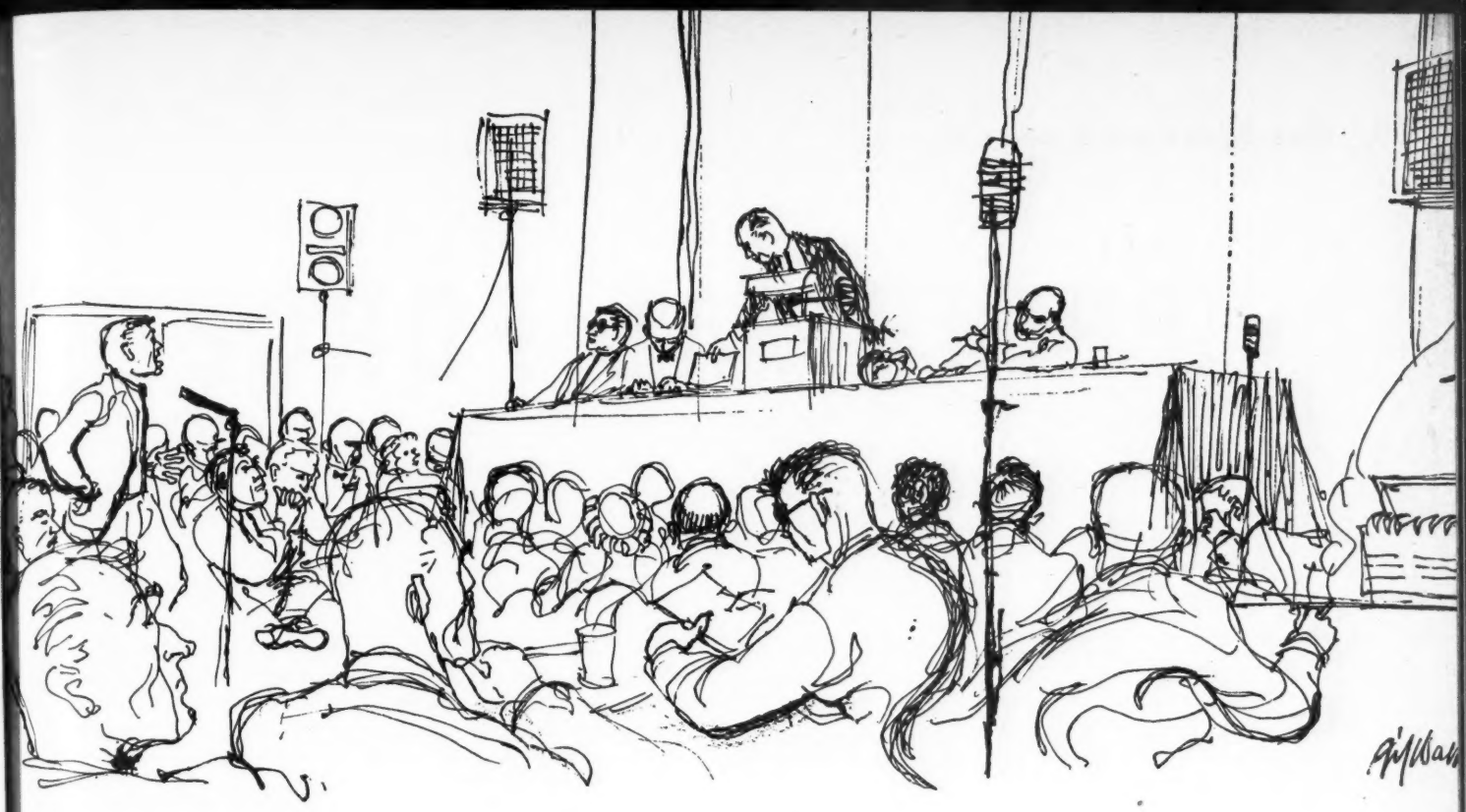
I would like to think that with all your ingenuity, intelligence, patriotism, loyalty, you would find some way to bring more young men and women into aviation and interest them. This is one of the great drives going on in Russia today and the Red Chinese are adopting the same techniques of interesting youngsters from the ages of eight to twelve in aviation. I don't know how you could do it, but it might be possible to do something like the Junior Baseball Association or the Soap Box Derby in this country, tying something of that sort in with the tremendous aviation program and get at the youngsters. Believe me, if I have any ability as a reporter and interpreter of events, our security, our future, and our happiness depend on airpower and almost solely on airpower. Therefore, I say to you that if this country is to remain free—and it is your goal to keep this country free now and in the future—we must everlastingly work at maintaining the world's finest Air Force, not in numbers alone, but especially in quality and better trained pilots. We must back up the aviation industry, which is missing no bets but is looking forward constantly, and supported, of course, by our industrial production, our ability to make nuclear weapons and deliver them over great distances, and backed up, of course, by the production of these nuclear weapons.

One thing more I urge and that is that the United States of America now and for many years to come give up not a single overseas base. We need every one of these bases. They are bases defending freedom. They are the surest shield from which to work. These air bases have been won at great cost in time, labor, and effort and one of the tremendous objectives of Russia now, of course, is to say, "If you will pull some of your Air Forces out of Western Europe, if you will give up some bases, we will reduce our land divisions from 180 to any figure you wish to make." Remember this: Russia is virtually on an all-out wartime basis at all times. Therefore, a land division demobilized today can be quickly reactivated again. Russia works on interior lines of communication and supply and therefore any concession they could make would be very, very meager indeed even if they reduced their land forces in turn for getting us out of the European theater. They would like to have us leave the continent of Europe and go back to North Africa or England. If we were ever foolish enough to give them up, it would be very difficult to ever get back those bases. Whatever you do in your efforts to promote airpower, to see that we have the world's finest Air Force, please keep in mind we must not give up a single one of these air bases which enable us to attack Russia if we are forced in retaliation from so many directions simultaneously. Our one great deterrent still remains our Air Force, the nuclear weapons we have, and the bases from which we work.

ABOUT THE AUTHOR

AFA keynoter Virgil M. Pinkley has been a newsman for a quarter of a century. He was graduated from the University of Southern California in 1929, joined the United Press in London the same year and was appointed director and chief editor of UP's continental services in 1937. In 1939 he was named European business manager and in 1941 became European general manager, responsible for news from sixty-four countries. He was accredited as a war correspondent by the British in 1939 and by the US in 1941. In 1944 he was elected vice president of the United Press. He left UP in 1948 to become editor and publisher of the Los Angeles *Mirror*, now the *Mirror-News*. Mr. Pinkley travels extensively to cover top news events, and he is also a commentator for the Mutual Broadcasting System.

Ladies and gentlemen, you have a busy week ahead. You have been wonderful to ask me here. These have been rambling observations and if they have been of any value, I am delighted. I would like to make one last final request. I believe this with all my heart, after twenty-five years of traveling and talking with well informed people and trying to observe events of the world: If we are going to keep this glorious flag of ours filled with so many stars, flying high and proudly, we must give it the protection of the world's finest Air Force. Therefore, I would like to ask every man and woman in this room to resolve and follow this resolution up by individual and collective deeds, to see to it, regardless of time and effort, the opposition, and the cost—as far as I am concerned, if the United States Government needs to double the taxes to give us the kind of Air Force they need, they can have it gladly—to see that we make absolutely certain that in this period of sweet talk by the Russians that we are not lulled into a sense of security; that we insist, whatever happens to the Army and Navy, that we, nevertheless, maintain the world's finest Air Force, backed up by the world's best and finest research, and piloted by the world's best aviators.—END



The President's 1954-55 ANNUAL REPORT

Here's how the Air Force Association's outgoing President, John R. Alison, reported on the growth and activities of the Association during his year in office

AFA leaders in 1954-55, General Kenney, who was Board Chairman, and President Alison, talk over the year's activities.

AS WE conclude another Air Force Association year at our annual National Convention, I can think of many projects of the last twelve months which make me proud to be a member of this organization.

I must confess, however, that I have one favorite—our campaign for the release of the fifteen American airmen who for so long were held unjustly, as political prisoners, by the Red Chinese behind the Bamboo Curtain.

Even now, eleven of these men are just touching American soil for the first time in many months and are seeing their loved ones once again. We are proud to have three of the first four POWs to come home—Lt. Col. Ed Heller and Lts. Roland Parks and Lyle Cameron—with us in San Francisco as honored guests of this Convention.

(Continued on page 120)

Our National Policy's

PRINCIPAL FORCE

I SPEAK to you tonight at this Ninth Annual Convention of the Air Force Association with mixed emotions. It is an honor to be your speaker, but to be with you in San Francisco is a great added pleasure.

Being a Westerner, I know and appreciate the spirit and hospitality of the magnificent city of San Francisco. To be with the men of the Air Force, past and present, and their wives on this occasion and in this city is indeed a happy one.

On the other hand, I am here only because a man for whom I have great admiration and affection cannot be with you. Harold Talbott has left the Air Force after more than two and a half years of devoted service as its Secretary. As his Assistant for Materiel during this entire period, I worked intimately with him and know that he is honest, forthright, and acted always as he thought entirely proper.

Harold Talbott was an outstanding Secretary of the Air Force. He was courageous, earnest, and tireless. He devoted his very great energy and his time without reserve to the interests of our national security. He will be missed and long remembered.

Tonight I would like to review with you briefly some of the things that have been accomplished in our growing Air Force, and to talk to you about a few of the problems that lie immediately ahead.

First, by way of review, I am pleased to be able to tell you that the past year has been one of great growth. Our strength in wings increased a little more than we had thought was possible. We now have more than 124 wings of our 137-wing goal. All of our fighters and medium bombers are jets, and the conversion of our heavy bombers to jets has commenced. Replacements of certain models of aircraft in the 137-wing structure, with greatly improved types, is well along in some categories, and in the design rooms of the aircraft industry we are working on still further improved models for the future.

To attract and to keep competent personnel has been our major problem. While there is still much to be done, important progress has been made during the year. The reenlistment rate has increased and is still rising—undoubtedly influenced by the increase in pay and the reversal in the trend to reduce fringe benefits.

During the last session of Congress the military construction authorization bill provided the Air Force with funds to erect a little over 11,000 sets of public housing. In addition, under the Capehart Amendment, Wherry Housing has been extended, and other guarantees have been arranged which will make possible private construction under a competitive bid system, which should realize another 100,000 sets of quarters. This latter increase is accomplished through authorization to use quarters allowances to pay off mortgages. This will make needed housing possible, doing so without adding to federal expenditures.

A potential benefit for the Air Force family is the Survivor Benefits legislation now under Congressional consideration. As you probably know, there were many inequities under the old system. Under the new plan, Regular and Reserve will be treated alike. Air Force personnel will be covered by Social Security on a contributory basis, in the same manner as other wage earners.

The proposed law would provide generally higher benefits than former free coverage under Social Security—full coverage on the first day of service—all wage credits retained upon leaving service—and the airman and his wife will be eligible for benefits at age sixty-five.

It further provides that the widow of an airman will receive her six months' gratuity no later than twenty-four hours after her husband's death, thus making money immediately available when it is most urgently needed.

Now I'd like to talk for a few minutes about our Reserves.

The Reserve forces, with their assigned D-Day missions and their role in support of the Active establishment, are an integral part of the defense team we must maintain in a condition of combat readiness.

Our mobilization requirement for Reserve forces to support the 137-wing Air Force is for fifty-one combat wings, plus other support units. Twenty-seven wings—mostly fighter-interceptors—are for the Air National Guard. The remaining twenty-four are for the Air Force Reserve and are made up of nine fighter-bomber wings, two tactical bomber wings, and thirteen troop-carrier wings.

The fifty-one Reserve wings, plus the 137 wings of the Active Establishment, will compose a highly effective fighting force. This will be our first team in the event of hostilities. It must be trained as a team and ready as a team.

Our Reserve forces are receiving more and more jet aircraft. Of some 2,700 aircraft assigned to our Reserve forces, more than half are jets. Also, we now have more Air Reservists and Air Guardsmen in training than at any other time in Air Force history.

The greatest credit should be given to the unselfish men of our Reserve forces. It is not easy to give up your Saturdays and Sundays, your evenings with your family, and your precious two-week vacation year after year. But these thousands of patriotic Americans offer this sacrifice to retain and improve the technical skills which will be of such critical importance to their country if they are ever called again to its defense.

While speaking of those who unselfishly give their time to the nation's needs, I must add a word of praise for the hard-working men and women of the Ground Observer Corps. Night and day, in observation posts and air defense filter centers across the nation, these friends and neighbors stand watch.

The Honorable ROGER LEWIS

Assistant Secretary of the Air Force

Air Defense and its warning facilities are indispensable to national security. The individual and collective efforts that Ground Observer Corps volunteers have contributed are increasing the effectiveness of our Air Defense operations and augmenting the nation's air strength.

In a recital of things that have happened in the past year, I cannot pass over the historic event that took place on July 11 of this year. On that day, the United States Air Force Academy was formally dedicated and its first class was sworn in.

The Air Force Academy is the culmination of an old dream of the men who made the Air Force what it is today. It is the insurance of the Air Force's future.

To commemorate that historic event, President Eisenhower had this to say:

"In taking its place beside West Point and Annapolis, the Air Force Academy joins a proud company. The honored histories of the two older institutions provide a peerless standard against which, in future years, the excellence of the new Academy will be measured and found worthy. . . ."

The traditions of West Point and Annapolis are shining ones to emulate. Graduates of these institutions have written bright pages in American history. But the Air Force has a tradition, too. The Air Force tradition has been blazed across the skies of only a little more than half a century—blazed by men who had their feet on the ground but who had their minds and their soaring hopes among the stars.

Yes, the Air Force has its own tradition—*a tradition of the future,* that inventive restlessness which prods men beyond the satisfaction of what they have today and urges them onward toward greater tomorrows.

Today's Air Force has the finest leadership in the world—men who have been battle-tested by two wars in less than ten years—men who have already cloaked your Air Force in the tradition of victory.

The Air Force of tomorrow will need men of the highest caliber and dedication to carry on this tradition.

With the first class at the new Academy, I believe we have made a good start toward acquiring the type of leaders we will need in the future.

To give you an idea of the type of young men who formed the Academy's first class last month—forty-six were presidents of their high school classes and twenty-nine were Boys State Delegates, a group of outstanding youths honored by the American Legion.

It is also worthy of note that twenty-eight members of the first class are former cadets of the Civil Air Patrol, that important auxiliary of the Air Force which is doing so much to introduce the youth of America to the airplane.

(Continued on following page)

PRESIDENT EISENHOWER'S MESSAGE TO THE AFA CONVENTION

Dear Nate:

The Ninth Annual National Convention of the Air Force Association in San Francisco is an appropriate time for the Association to pay its tribute to United States airpower as a deterrent shield which has enabled the Free World to proceed more confidently in its quest for peace.

As they meet in San Francisco, please convey my personal greetings to my former comrades in arms and my best wishes to all members of the Air Force Association.

Sincerely,

Dwight D. Eisenhower

Gen. Nathan F. Twining
Chief of Staff
United States Air Force

AF SECRETARY QUARLES'S MESSAGE TO THE AFA CONVENTION

To the Air Force Association at its Ninth Annual Convention and Reunion:

When I declined the invitation of the Air Force Association to attend its San Francisco meeting, I did so with sincere regret, remembering my very pleasant and rewarding experience at Omaha a year ago. Of course, when I declined, I was assuming a stable world and a predictable future. Now, Harold Talbott, whose leadership of the Air Force has won the admiration of all of us, has stepped aside and the President and the Secretary of Defense have asked me to carry on. This is a responsibility and a challenge. There is no other cause that would have stronger appeal for me, no other organization that I would rather identify myself with. It is a responsibility that I would view with dismay if it were not for the splendid people I will be associated with.

The Air Force Association symbolizes and personifies the teamplay between the military and civilian, between the government and industry, that has brought our air arm to its present eminence, and it promises to keep it there.

Donald A. Quarles

As with everything new, the Air Force Academy has its critics, but criticism is one of the major assets of a free country. Competitive ideas are the parents of progress. In the end, we'll come up with a style of architecture to please a majority of the American people. It's their Academy—and their Air Force.

Now for some of the problems. Much has been accomplished in the areas of personnel and weapons, but if we are to be certain that our Air Force retains its position of superiority, we must continue to build aggressively in both fields.

Lack of adequate housing is still our major problem. Even with the new housing authorized, it is a severe handicap to the posture of instant readiness we seek. We still have pilots who live an hour and a half away from their bases. We still have officers and airmen living in quarters no better than slums. If we are to have the kind of men modern air warfare requires, have them fit and ready, we must have adequate on-base housing. In the word "housing," I, of course, included the necessary churches, schools, and recreational facilities.

Another serious problem is the matter of dependents' medical care. We have human beings in our Air Force. An airman whose wife or child is ill and who can't get adequate medical care for them, is an ineffective airman. We have got to find a means to meet this problem in a decent way. To date we have not done so. It is not enough merely to mouth phrases such as "medical care for dependents will be provided when facilities permit." Adequate medical care for dependents has to be *assured*, if we want good men in our Air Force.

While I am confident that in the area of our materiel—specifically, our weapons—airplanes, engines, and radar—we have superiority, still I must remind you that technology is advancing at an ever-increasing rate. Not only is the degree of increase in performance advancing, but the equipment itself is becoming highly technical and complicated.

The American economic system is particularly well suited to the translation of our great national resources into weapons for the military inventory in as short a time as possible. However, we can no longer rely on accomplishing this on a crash basis.

To develop superior bombers and to get them into the inventory requires up to eight years. Advanced engines require five years to develop if they are to have in them the degree of performance and reliability we feel we must have. Complicated communications and fire-control equipment are taking increasingly longer to develop.

We have the finest Air Force in the world today, and if it is to remain the finest as long as the age of peril continues, we must have a continuously high level of invention, development, and production dedicated to the proposition that the United States Air Force must be equipped at all times with weapons that are technically as advanced as the state of the art permits.

The Air Force of 1960 to 1965 is in our minds, on the drawing boards, and in the prototype shops today. Development, marching as it does with the state of the art, cannot be compressed, but it can be delayed by lack of purpose, and it can be delayed by confusion, misunderstanding, and inattention.

This must not happen. In air warfare, as in poker, there is no second best hand. Neither can you fight a 1960 war with a 1958 model Air Force.

The United States Air Force in 1955 is a strong force and a ready force. It has come a long way, and come rapidly. Its growth is about completed. The emphasis now must be on its refinement; its increased performance, greater efficiency and readiness.

No longer does the concept of airpower have to be sold. The public understands it—our potential enemies understand it. What must now be done is to make certain that the public understands and supports the concept that airpower is dynamic—that it must have the ultimate from our great national technological assets.

To remain superior, our forces must at all times be equipped with the best weapons possible. This requires continuous and aggressive research and development. It will require a continuous and expensive process of replacement as improved equipment becomes possible.

The public must also understand that the same continuous effort must be applied to attracting and keeping superior personnel. In our technological age, where so few men must do so much, we must make military service a dignified and rewarding career for the best from succeeding generations of American men and women.

To do this, they must have the compensation and the facilities which give them a standard of living comparable to that offered outside the service. The military standard of living, like that for every other American, must reflect in progressive increases the continuing growth of the American standard of living.

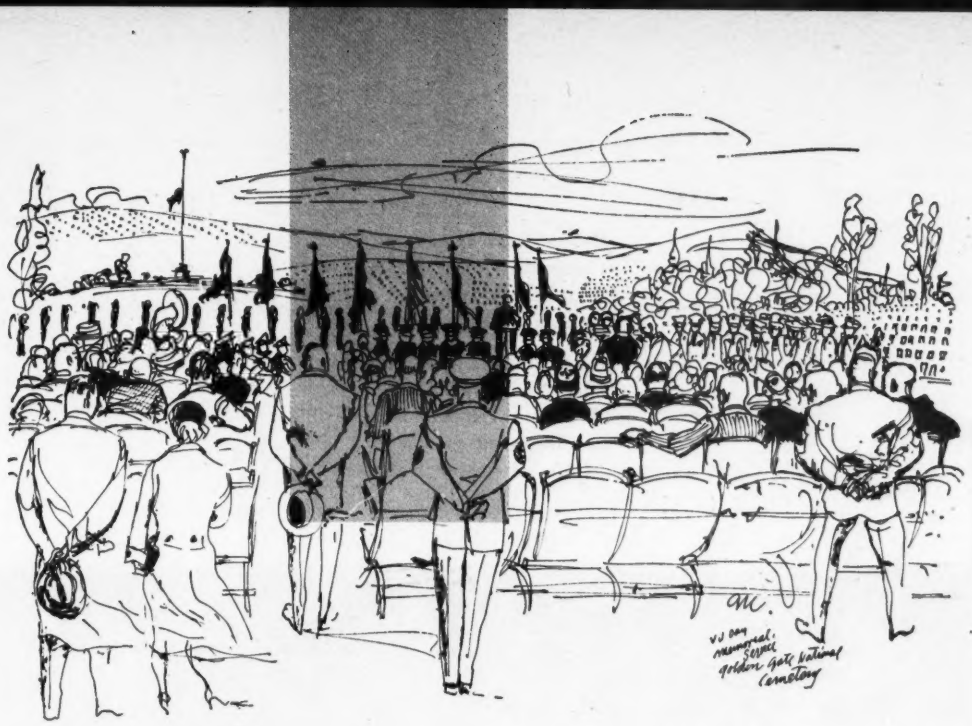
When we are aware of our problems, and when we are stimulated to do something about them, there is nothing this country cannot accomplish. In the age of peril, it is vital, if we are to survive, that the United States Air Force receives the best the nation can give.

The Air Force Association, as the public member of the airpower team, has been a dominant factor in its growth to date. It is your sacred responsibility to continue to understand, and to make certain that all Americans understand, what must be done to keep our Air Force the best in the world.

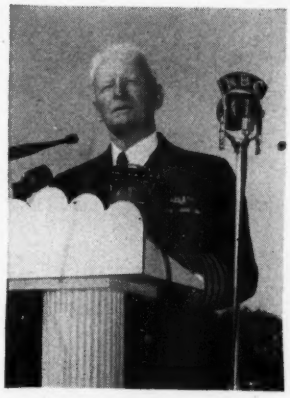
Long past is the day when the Air Force sought the role as the principal force of our national policy. We have it. It is our job to make certain that we discharge this responsibility with honor and competence.—END

The Honorable
ROGER LEWIS
Assistant Secretary of the Air Force

Roger Lewis is a native of Los Angeles, Calif. Born January 11, 1912, he was graduated from Stanford University in 1934. From then until 1947 he worked for Lockheed Aircraft Corp., starting in the sheet metal shop and working up to assistant general sales manager. He joined Canadair, Ltd., in 1947 as a sales manager and later became a vice president. In 1950 he joined Curtiss-Wright Corp. as director of sales and later a vice president. He left C-W in 1953 to become Assistant Secretary of the Air Force for Materiel, serving in this capacity until his retirement last month. As Assistant Secretary he was responsible for materiel matters, industrial resources, AF participation in the Mutual Defense Assistance Program, transportation, and other service activities.



Golden Gate National Cemetery V-J Day services.



Principal speaker at Memorial Services was Fleet Admiral Chester W. Nimitz, USN, Ret.

A Salute to Our Pacific War Dead

The Ninth Annual AFA Convention in San Francisco was appropriately drawn to a close with a salute to our men who died in the Pacific War. Speaking at the Memorial Services at Golden Gate National Cemetery on Sunday, August 14, Fleet Admiral Chester W. Nimitz, USN, Ret., urged the nation "to remain strong and ever ready to meet sneak attack and resist aggression." Color guards from all the services, the Hamilton AFB band, and the Parks AFB choir participated.

(More Convention pictures on next page.)

AF, Army, Navy, and Marine color guards take part in the program.

Below left: Honorary Chairman, Mrs. H. H. Arnold, widow of General Arnold.

Below right: Mrs. Arnold and Army Maj. Gen. William F. Dean, two of the honored guests at AFA's Airpower Banquet.

Spotting an old friend across the room may have prompted this smile.

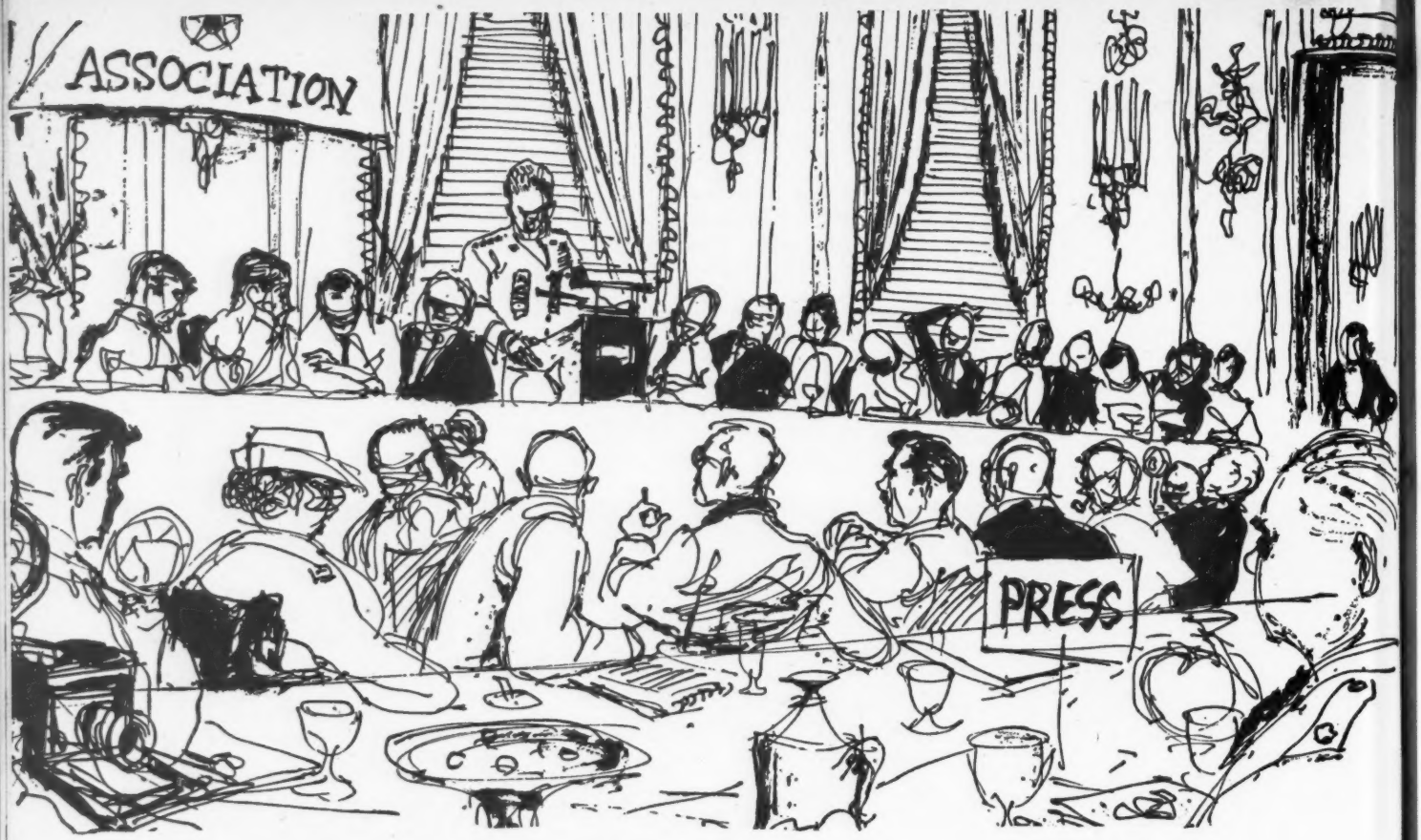
Highlighting the events for the ladies was the Ladies Fashion Luncheon (see facing page). At the luncheon, Miss Airpower of 1955, AF flight nurse Capt. Gloria G. Sauls modelled the Airpower gown, specially designed for her by Ceil Chapman. The Norfolk, Va., beauty was chosen from a field of twenty-five flight nurses on the basis of attractiveness, nursing experience, and professional skill. Her present duty station is in the Azores.

Fisherman's Wharf drew many Convention goers,

Flight nurse Gloria G. Sauls, Miss Airpower of 1955, models Airpower gown, designed by Ceil Chapman.

Below left: Miss Airpower chats with Medal of Honor winner, Lt. Gen. Leon W. Johnson, ConAC.

Below right: Miss Airpower is escorted by recently freed POWs Lt. Col. Edwin L. Heller and Lt. Lyle W. Cameron.



Above, artist's impression of the Symposium Luncheon at which General Twining spoke. At left, General Twining with retired Gen. Carl A. Spaatz, first Chief of Staff of the AF

YOU HAVE chosen a wonderful site for your Convention. San Francisco is one of the most beautiful cities in the world, in an area that has a tremendous heritage in aviation.

The whole West Coast is a great source of America's strength in the air. Here we find good flying weather, and ideal locations for air bases. Here also is a big part of the greatest aviation industry in the world. In the aircraft factories and at our test centers, aviation history is being made every day.

San Francisco has earned a place in history in another way. It was here a little over ten years ago that the United Nations was born. And just last month, on the tenth anniversary of the founding of the United Nations, a meeting of the leaders of sixty countries met to renew and redeclare the world's efforts for peace.

Earlier today you have been discussing Main Street in this age. The people of Main Street all over the world want peace, and their eyes have been focused on the summit meeting at Geneva. We all joined in hoping that this gathering of statesmen would produce a significant step toward peace in the world.

There can be no doubt that a new mood prevailed, and the hopes for a relaxing of world tension now are higher than they have been for years.

No one has claimed that the Geneva meeting resulted in specific agreements on concrete questions.

Yet, it is generally felt that the world is closer to peace.

We of the Air Force fervently hope this is true.

For years we have said that airpower is peace power. This truth has been demonstrated, and no one can deny that the shadow of airpower fell cross the conference table at Geneva.

It is by no means irrelevant that a United States Air Force navigator showed the Soviets the way to Geneva.

We of the Air Force are proud that American airpower was prominent in that strength needed to negotiate on these great matters.

We are even prouder that our President took the lead in proposals aimed to reduce the paramount fear of our times—the fear of surprise air attack and the great devastation of air warfare.

The world welcomed the President's proposal to the Soviet Union to exchange facilities for aerial photography.

The Shadow of Airpower at Geneva

Gen. Nathan F. Twining
CHIEF OF STAFF, US AIR FORCE

General Twining, this year's winner of AFA's highest award, the H. H. Arnold Trophy (see page 68), began his military career with the Oregon National Guard in 1916. He was born in Monroe, Wis., in 1897 and was graduated from the US Military Academy in 1918. He won his wings at Kelly Field, Tex., in 1924, and then instructed at Brooks Field, Tex. In WW II he had tactical command of all Army, Navy, Marine, and Allied AFs in the South Pacific, and he later commanded the 15th AF in Italy and headed the Mediterranean Allied Strategic Air Forces. He became Vice Chief of Staff of the USAF in 1950 and succeeded Gen. Hoyt S. Vandenberg as Chief of Staff in 1953.

This plan was aimed squarely against surprise attack. I sincerely believe this could be a key step toward peace.

The President's outline for preventing surprise attack carried with it a sincerity and significance that made a profound impact. His actions should be reassurance to all that he and this nation are champions of peace.

If this proposal is accepted, the Air Force will enthusiastically devote its energies to make this great idea work.

Even the Air Force bases where we are now standing twenty-four hours vigil against a possible Soviet attack would conceivably be made available to the Soviets for this purpose.

In the Air Force we have always put our whole effort into keeping strong and instantly ready as the best means of preventing war. We are ready to devote equal energy to any workable, alternative strategies that promise peace.

While we seek better ways to safeguard peace, we are determined to maintain our strength until mutually dependable systems for reducing armaments have been worked out.

For, while Geneva commanded attention in mid-July, the eyes of the world were drawn to Moscow in May when the Soviet Union paraded its military might for all to see.

As they readied their air might to celebrate May Day, the rulers of the Soviet Union made a different but no less lasting impression on us. They showed all the world that they too had learned the airpower lesson all too well. The intercontinental jet bombers, the medium jet bombers, and the supersonic fighters flying over Red Square were grim evidence of what many of us had already realized—that Soviet Russia had become a modern, powerful arsenal of airpower.

Just last week—only days after Geneva—the Soviets resumed testing of nuclear weapons.

It is clear that Geneva must be weighed against Moscow. It is also clear that although airpower has been the motivating force behind the quest for peace, it is a force we must keep if we are to have peace.

If we should allow ourselves to become relatively weak in the air, our efforts to achieve a workable peace would no doubt fail.

This is something that a great many people, even here in the United States, do not understand. Some have even said, "Let's ban airpower with its nuclear weapons."

Strangely enough, the man in the Kremlin says the same thing.

What are the alternatives to our nuclear airpower?

Before we hasten to turn kilotons into kilowatts—today's version of swords into plowshares—let us see what nuclear airpower is doing for the world in its present form.

True, nuclear weapons can wreak horrible destruction. But the very horror they evoke has brought to the world a new awareness of the terror of war. They have awakened redoubled efforts for peace. They have caused aggressors to think twice. They have softened the voices at the conference table.

Has the time come when we can cast away or even neglect the instruments that have brought these great changes?

Am I speaking against disarmament? Far from it. There are those, I know, who through the ages have accused military men of being warmongers. Some people still believe that a military man without a war is an unhappy man.

Most of you in this audience have had your taste of war, and know that nothing could be further from the truth. No one knows the horrors of war better than the man who has had to fight them. The professional soldier knows better than anyone the terrible futility of war and killing and destruction. Those who have had to fight all the wars of the past have been those who learned to hate war.

Today nuclear weapons have brought home the terrific destruction and terrifying impact of war to those who would make war.

For the first time in history, no head of state, whether democracy or dictatorship, can promise the man on Main Street clear-cut and certain victory in war.

The most he can promise is devastation of the lands of another people. He cannot promise his people that their own lands will not be blackened.

This is not good enough. Even in a dictatorship, the people who will do the fighting and the working must be promised more than this.

Terrible as they are, should we then denounce these weapons that have sharpened the world's appetite for peace? Should this be done, even if it were possible for both sides to do so? If this were done, is there any guarantee that it would lessen the chances of war—or erase the main causes of conflict between East and West?

On the contrary, I believe it would increase the chances of war—for it would invite aggression without instant and dangerous penalty to the aggressor.

In the meantime, while we weigh the hopes of Geneva

(Continued on following page)

let us also remember Moscow in May. Let us be sure that we more than match Communist airpower. We know from bitter experience that Communist smiles can change to scowls and velvet can turn to steel. A very wise man once uttered this word of caution, "You don't take your coat off every time the sun shines in Moscow."

Last year when I discussed the Soviet air strength, and the knowledge we had of it at that time, I said that the Air Force we are building was planned on the basis of present rather than future Soviet strength. I warned that if the Soviet Air Force continued to improve, we would have to step up our own efforts.

In measuring our airpower against the Soviets, there is one thing I would say here today: We are still ahead, well ahead, in the kind of airpower the Soviets respect!

However, in view of the technological and production achievements of the Soviets, we have decided to speed up our timetable in both offensive and defensive forces.

The aviation industry has responded magnificently to this challenge. Production schedules are being accelerated on two of our newest fighters and the B-52 bomber program has been pushed up. We will now complete the conversion from B-36s to jet B-52s a full year ahead of the time planned when I met with you last year.

Among the fighters, we are speeding up the McDonnell F-101, known as the Voodoo. This is a great airplane. It is very fast and can carry a huge load. It is a big plane, almost as big as a bomber. And it can really fight.

We are also speeding up the little one, the Lockheed F-104. This is a fighter pilot's dream. We feel confident that it is the fastest, highest-flying fighter in the air, anywhere.

I have been talking about some new planes in the Air Force. Now I want to mention something else new that we are trying to add to the Air Force—that is stability.

Do you realize that in a period of about six years, the planned size of the Air Force has changed eight times? It has gone from sixty-six wings to fifty-five, then forty-eight, then forty-two, ninety-five, 143, 120, and finally 137 wings. It is significant that for the past two years we have been set on the latest goal—137 wings. This has meant two years of comparative stability.

It might be obvious to say that it's hard to make progress if your goals keep changing, but I am afraid that has been the situation in the Air Force for several years. In the period of fluctuating force levels and bouncing budgets, it is a wonder that the Air Force did as well as it did.

However, stability doesn't mean inflexibility. We all know that a 137-wing Air Force is not a permanent solution to our airpower needs.

The stability of the last two years has given us time to settle down to orderly progress. We have, at last, had time to tidy up our management and administration. Our men and women have been able to produce more in this stable atmosphere. They stay longer at one assignment and at one location.

Some of the SAC and TAC men who have lived out of a suitcase for the last year might not agree, but I am speaking of trends. The new stability enables us to get more work per man per year, and more results. It has allowed us to take on the marks of maturity. Most of the credit for this is due to the management and ingenuity of the commanders in the field. Without their full support it would not have been possible. This does not mean that we have developed a "business-as-usual" attitude. It does mean that we were finally able to do many things that we could not do before.

One of these things is to make our Reserve program more effective. We are getting some stability here too. We now have the best Reserve program we have ever had in the whole history of the Air Force. We all owe a tribute to those who have made this possible.

I am determined to do everything I can to continue to make the Reserve and National Guard wings—all fifty-one of them—a solid, effective force—well trained and well equipped.

You supporters of the Air Force have had a great deal to do with the progress we have made and the stability we are achieving. Your efforts have helped to create the conditions under which we could settle down to more efficient, less frenzied operations.

In one way this could make the coming years a period of great danger. The apparent easing of international tension could lull the nation into dangerous complacency. The progress we have made in building our strength up to its present strength of 124 wings could be relaxing.

The progress we have made must not be confused with the strength we need.

We still have a long way to go.

We have thirteen more wings to build and we are still two years away from the goal. These wings will take thousands of people to run them, good people, if they are to be good wings. They will take hundreds of airplanes, better than any produced in Communist countries, if they are to be counted as effective wings. We need more air bases, more housing, and more hangars—things just as important as planes and bombs in our ability to hold the peace.

It is up to us in the Air Force and to you supporters of the Air Force to keep your interest in these goals.

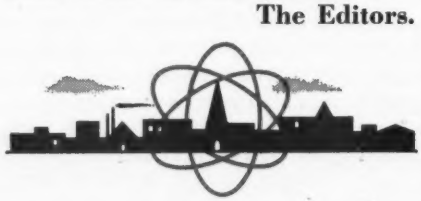
I would close with this thought.

If we lose the battle for peace, it will not be because United States airpower failed, but because the United States failed its airpower.—End

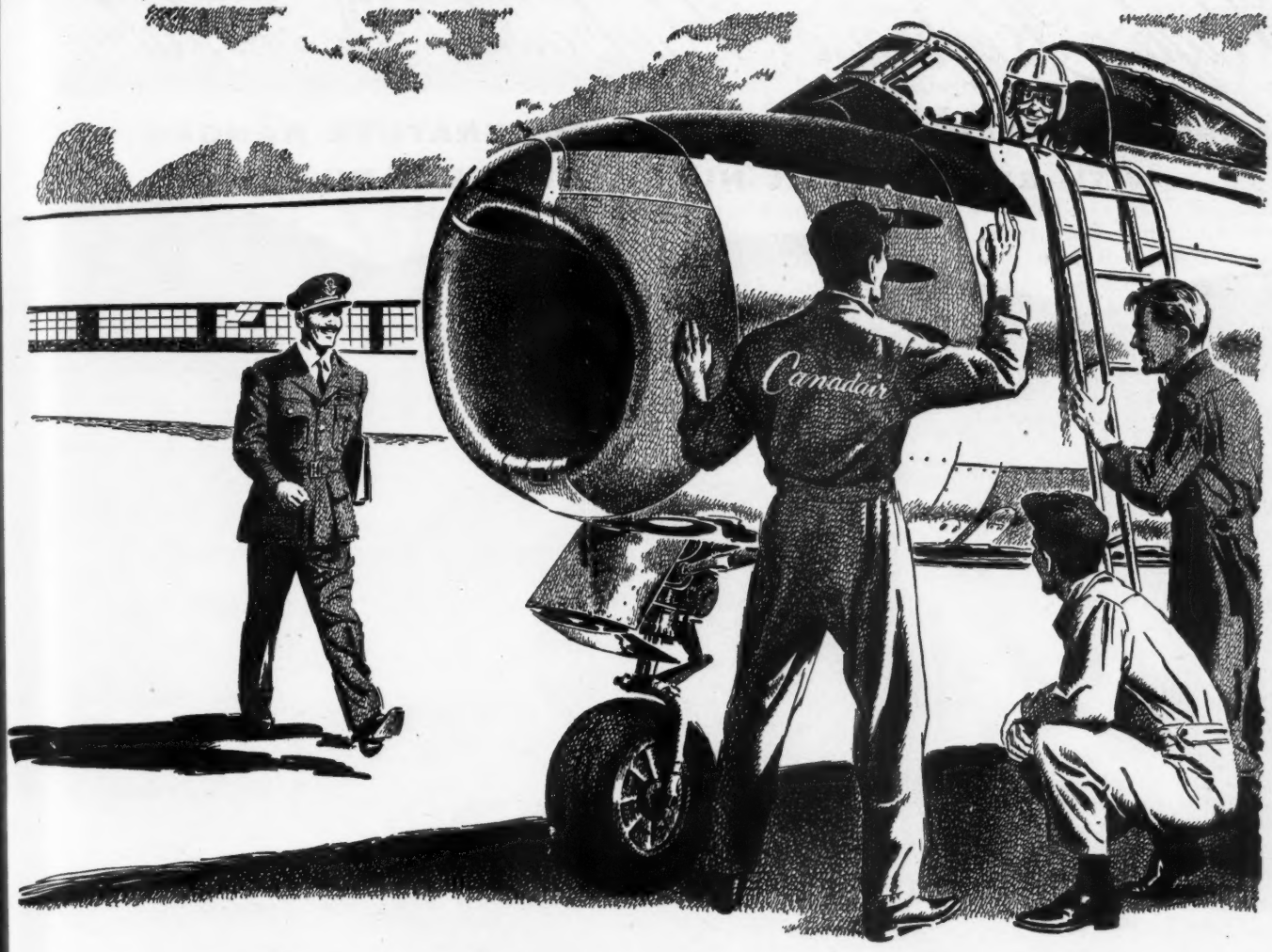
special report on

MAIN STREET IN THE HYDROGEN AGE

One of the most important features of an Air Force Association Convention, we feel, is the annual Airpower Symposium. We are proud to present, beginning on page 45, the text of the fourth such Symposium. This year's version, featuring four outstanding speakers who addressed capacity crowds, took place on August 12 in the Fairmont Hotel in San Francisco.—The Editors.



We bridge the Oceans...



Service Counts—AT CANADAIR

Wherever Canadair aircraft fly, you will find Canadair field service representatives. Their unique record for prompt, efficient servicing of Canadair Sabres operating in NATO air forces is typical of these men in action.

At present, more than 200 technically trained personnel are providing service on some 2000 Canadair aircraft located in Europe, Asia and North America. Mobile training units have been provided to instruct ground and flight personnel. Overhaul and repair assistance and accident prevention engineers are available to the customer as required.

In service and in the rapid availability of parts and equipment throughout the world, Canadair has literally eliminated ocean barriers . . . another reason why people who know say "you can count on Canadair."

C-L CANADAIR LIMITED

CANADAIR

— AIRCRAFT MANUFACTURERS —

LIMITED, MONTREAL, CANADA

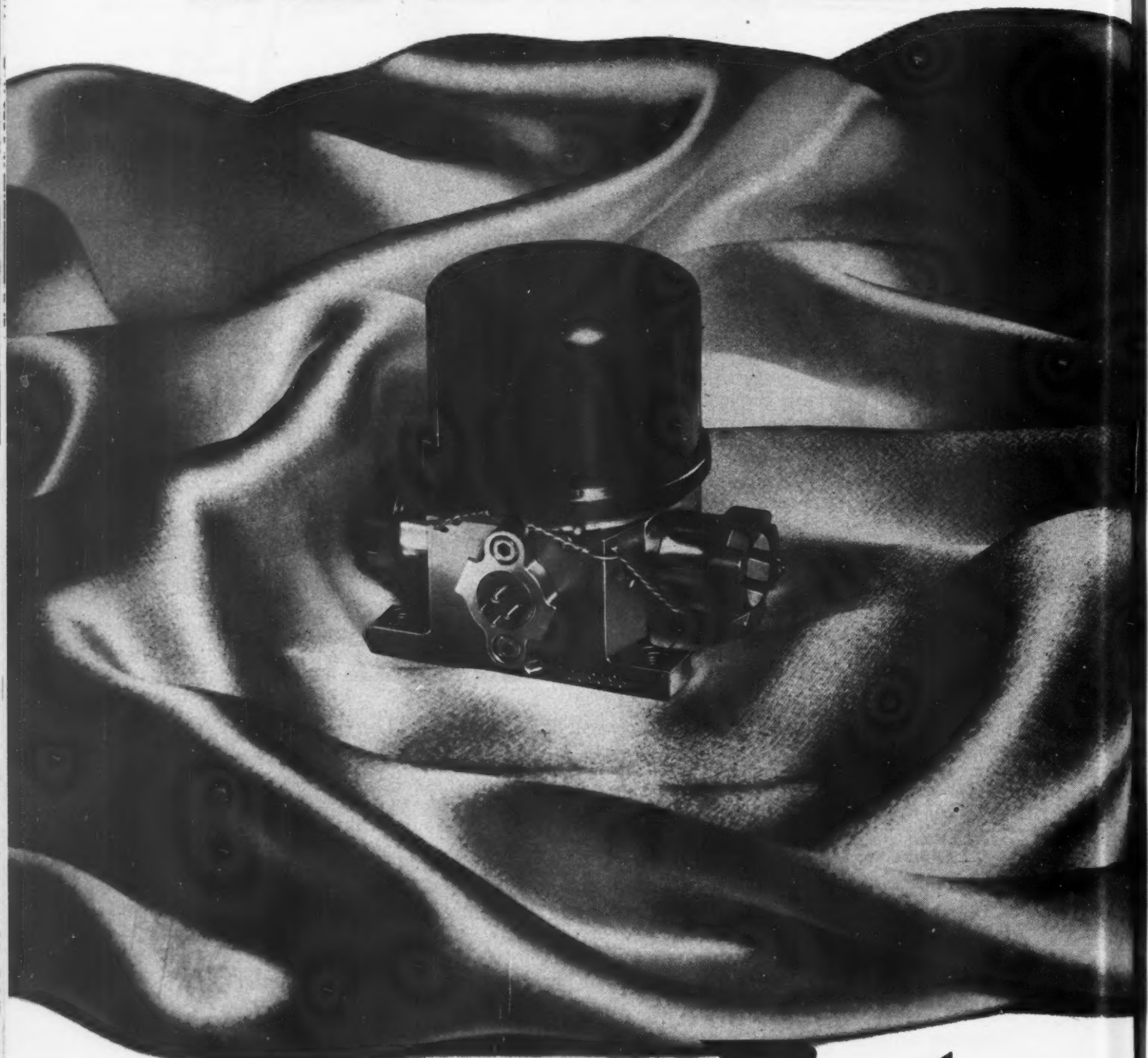
A subsidiary of GENERAL DYNAMICS CORPORATION, New York, N.Y. — Washington, D.C.

CA55-9UST

BENDIX-PACIFIC

High Response Hydraulic Servo Valves

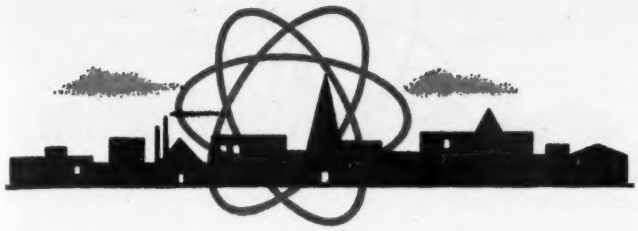
GREATER STABILITY AT WIDER TEMPERATURE RANGES
WITH EXCEPTIONAL NULL SHIFT RELIABILITY!



Write to us outlining your Servo Valve problem.
Application engineering is available.

Bendix
PACIFIC DIVISION
Bendix Aviation Corporation
NORTH HOLLYWOOD, CALIF.

EAST COAST OFFICE: 475 5th AVE., N.Y. 17 • **DAYTON, OHIO**—1207 AMERICAN BLDG., DAYTON 2, OHIO • **WASHINGTON, D.C.**—SUITE 803, 1701 "K" ST., N.W.
CANADIAN DISTRIBUTORS: AVIATION ELECTRIC, LTD., MONTREAL 9 • **EXPORT DIVISION:** BENDIX INTERNATIONAL, 205 E. 42nd ST., NEW YORK 17



Main Street in the Hydrogen Age

Here's how AFA's outgoing Board Chairman started off the annual Airpower Symposium

Gen. George C. Kenney
Moderator, the Airpower Symposium

I REMEMBER when I was a youngster back in the early days of aviation, hydrogen was already an important commodity. They used it to fill big gas bags that floated through the air. Then they tacked a propulsion system to the gas bag and a flipper so they could control the direction. That was the thing that later on became known as the zeppelin and wandered around at about sixty miles an hour. If they ran into a good strong wind, they could even fly backward.

Hydrogen is a highly inflammable gas and it was a pretty hazardous thing. When the Hindenburg burned at Lakehurst back in 1937 it just about wound up the zeppelin age. Thirty-six persons were burned to death in that disaster. About that time hydrogen looked as though it were going to drift out of our vocabulary, but about sixteen years later it reappeared when at a little island out in the South Pacific a fifteen-megaton thermonuclear bomb exploded and the island virtually disappeared.

Thirty-six persons died at Lakehurst. Now millions of people in any large metropolitan area—and perhaps hundreds of thousands more of them several hundred miles away—would die from the fire and fall-out of just one hydrogen bomb. The amount of hydrogen would be considerably less in amount but somewhat different in nature from what burned the Hindenburg.

Hydrogen-filled zeppelins laboriously worked their ways through the windy skies. Today's hydrogen used in a warhead in an intercontinental ballistic missile would arrive from Moscow in about half an hour. The same hydrogen that was used to fill gas bags would make this missile move through the air at more than 10,000 miles an hour ground speed. That same hydrogen would make a warhead explode with a violence unprecedented in the history of the world as it arrived over the American target.

What does all that mean? What is the real significance to the man on the street of these great changes in man's ability to harness the forces of nature?

When I think of "Main Street" I think of Times Square on New Year's Eve. Anyone who has been there at that time knows what I mean. The first thing we need is information and education. We want to know what is going on so everybody fights for a place where they can see the clock and the crowds at the same time.

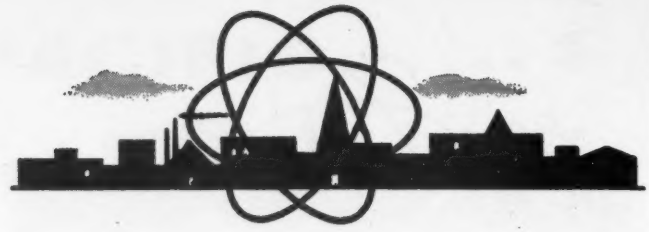
You have also a very interesting problem in community relations because Times Square on New Year's Eve is a community. You even have to know something about civil defense—some joker may want to push you around and you have to push back. So just picture Times Square packed with people on New Year's Eve and imagine what would happen if the Soviet H-bomb went off over their heads. That is what can happen some day to you or to me, whether we are in Times Square or on some other Main Street in our home towns unless we understand the challenge and the responsibility that faces us in this third year of the Hydrogen Age.

We all have to make sacrifices to make sure this calamity never happens. We have to dig down in our pockets for more money and more tax money for defense. We may have to send our sons off to military training. We have to learn to live with large standing military forces in this country. We have to put up with a lot of restrictions. We have to put up with the roar of jet interceptors overhead, interrupting our sleep and waking the kids up at night.

Preparing to avert war is really quite an inconvenience in many ways, but it is an inconvenience that is a whole lot better than dying in the rubble of your homes. The more we know about the problems involved, the easier it is for us to live with them.

That is the purpose of this Airpower Symposium, to tell us what it is all about and to give us a better understanding of the present, and a reasonable glimpse of the future and the major job ahead for all of us.

Above, AFA leaders and the Symposium panel members. From left, President John Alison, Brig. Gen. Thomas Phillips, Mayor George Dempster, the Rev. John Cavanaugh, Mr. Theodore Koop, and Gen. George Kenney, the Moderator.



Harris & Ewing

We Need To Know

Theodore F. Koop

Director of News, CBS-Washington

AS A cub reporter, more years ago than I care to remember, I was always instructed to write for the "milkman in Omaha." I never quite figured out why oldtime city editors considered Omaha milkmen the nadir of newspaper readers, but the expression was effective in keeping news stories simple and complete. One of the country's great editors put similar advice to his staff in more genteel fashion: "Do not underestimate the intelligence of your readers, but at the same time do not overestimate their stock of information."

Never in our country's history has a full stock of information been so necessary. When colonial editors were fighting for the right to print freely, the issues of the day were comparatively simple. Through the decades the *right* of the people to get the news has become well established. Today, in this Hydrogen Age, the *need* of the people to get the news is paramount. Without the fullest information they cannot cope with the complexities of modern civilization.

Three groups have responsibilities in the information field: Editors and broadcasters, the public, and the government. Let us look at the responsibilities of each group.

The right to know belongs to the people, but the duty of spreading that knowledge belongs to the communications industry—to the 1,800 daily newspapers, the 8,500 weekly newspapers, the 3,200 radio stations, the 450 television stations, the magazines, and books. I am convinced that the industry has been and is accomplishing its assignment to the best of its ability. This is not to say that it is doing a perfect job. Journalism is not an exact science. Time, space, and human foibles conspire to make newsmen fall short of their goal.

Probably the greatest shortcoming lies in their efforts to give meaning and perspective to the news. In their zeal to present spot facts as they develop, reporters too often do not have—or do not take—the opportunity to relate these happenings to previous events, to interpret them, and to examine every facet. Reporting in such cases becomes one-dimensional; it gives information without giving understanding. I am glad to say that newsmen for the most part recognize this deficiency and are doing their utmost to correct it. To cite only one example, CBS Radio this week and next is devoting all its public affairs programs to the subject, "The Age of the Atom." This saturation programming is an endeavor, coincident with the Geneva convention on peaceful uses of atomic energy, to explain in laymen's language what is happening in this vital field. Such an enterprise requires a great amount of work and skill, but it can be a real contribution to our "need to know."

Editors and broadcasters can do much to banish ignorance, but they cannot do it alone. The listener and the reader must be receptive. They must have the desire, the yearning, to understand. Thomas Jefferson said: "Where the press is free and every man able to read, all is safe." But I am sure that Jefferson did not have in mind the literal meaning of the phrase "able to read." He referred to the ability to read with comprehension.

Well, you ask, what can you do to improve your understanding of the day's news? I am neither a teacher nor a psychologist, but I should like to suggest a short check list of questions about a news item. First, what is the source? Is the source competent and reliable? Certainly you would give different weight to an official announcement from the White House than to a report circulated by the traditionally well-informed but anonymous quarters. I once heard a man say, "I like the weather forecasts in the *Star* better than those in the *Post*." He did not stop to consider that the source was the same—the Weather Bureau.

Second, is the story fair? If it describes a controversy, it should present the views of all sides. The material should be balanced so that mere weight of words cannot sway the listener or reader.

Third, is the story objective? There is a journalistic axiom that the editorial columns belong to the editor, while the news columns belong to the people. The editor has a right to express his opinions, but a responsible editor will not mix those opinions into a news story.

Finally, is the story complete? Does it leave any unanswered questions? If so, the reporter has failed in his

responsibility of seeking all the available facts.

Perhaps I have over-simplified the matter, but I hope that by answering these questions you can become your own judge of journalistic integrity. Instead of accepting blindly what you hear or read, you can weigh each report against all other information which comes to you. And I hope that in your quest for information you will regularly read and listen to opinions which are at variance with your own, for the informed American citizen ought to maintain a broad and tolerant viewpoint. Both the majority and the minority have a right to be heard.

The third party I mentioned as having a responsibility for keeping the people informed is the government. The federal government, in fact, has become the principal source of information we need—news about atomic energy, our military strength, our plans for civil defense, our relations with other countries, even the projected earth satellite. The duty of keeping the people fully informed is one of the most important confronting our officials.

Our heritage of a free press and free speech has been accompanied by the concept that government officials must operate in a goldfish bowl, that their every act must be subject to public scrutiny. Contrast this American viewpoint with a statement of the Communist revolutionary, Lenin, in 1920. He said: "Why should freedom of speech and freedom of the press be allowed? Why should a government which is doing what it believes to be right allow itself to be criticized? It would not allow opposition by lethal weapons. Ideas are much more fatal things than guns. Why should any man be allowed to buy a printing press and disseminate pernicious opinions calculated to embarrass the government?"

Sometimes I wonder whether Lenin's view is shared by at least a few American public officials who have put curtains around their own goldfish bowls. A high military officer told his colleagues during World War II, "If I had my way, only two communiques would be issued during a war. The first would say, 'We have been attacked.' The second would say, 'Victory has been won.'" That officer, I am sure, was motivated only by security. Yet I can assure him—and you—that broadcasters and editors are as security conscious as he. They have no desire to disseminate any information whatever that would be detrimental to the security of the United States.

The patriotic record of the communications industry was written clearly in World War II. The American press and radio—that was before television, if you can remember back that far—performed a notable service by observing a voluntary censorship that kept out of print and off the air information of value to the enemy. The industry was guided by a Code of Wartime Practices setting forth types of information which for security reasons should not be made public. Guidance on any particular news story could be obtained from the Office of Censorship in Washington. The best kept secret of all was the manufacture of the atomic bomb; when the first bomb was dropped on Hiroshima ten years ago last Saturday, it is an understatement to say the surprise was complete.

Newsmen then, as now, were perfectly willing to suppress any information that would aid an enemy. But in the decade since voluntary censorship ended on V-J Day, they have seen many disquieting instances of government officials bottling up legitimate news. Their concern has reached the point where several news organizations have created special committees on freedom of information. I am speaking to you today as a member of that committee for the Radio-Television News Directors Association. These committees demand public rather than star-chamber sessions of city councils and committees of Congress and state legislatures. They protest refusals to release unclassified information. They have accomplished much, but they have a long way to go. The blunt fact is that there is too much censorship in government today.

Why anybody wants to be a censor puzzles me. I served during World War II in the Office of Censorship, and I can testify that it is no fun to interfere with our traditional freedom of expression. As a result of that wartime assignment, I am constrained to believe that several misconceptions about the release of information have grown up in the government. In so saying, I am somewhat in the position of a veteran editor who was lecturing on newspaper ethics to a college journalism class. One student expressed rather violent disagreement with some of his remarks, and finally shouted, "The trouble with you, sir, is that you are tainted by experience."

One misconception on the part of some government officials is that they can pick and choose what news they will release. The suggestion has been made that only "interesting" and "constructive" information be disclosed. But who is to be the judge of what is "interesting" and "constructive"? Certainly not the official involved, because he then would be able to pass on his own acts, to seal up his mistakes, to avoid controversy. The judge must be the public and the newsmen who are the public's agents.

No elaborate scorecard is needed to reach a decision. There is only one question which can properly be asked in determining whether to withhold information: Does it jeopardize the security of the United States? If the answer is "No," it should be released. If the answer is "Yes," there is a further consideration: Is it more necessary for the American people to have the information than it is to keep it from foreign circulation? In many instances this answer will be in the affirmative. This could be especially true in regard to civil defense matters. In the event of an air attack on the United States, the people would have an overpowering "need to know." Our very lives would depend on the receipt of a certain amount of information that undoubtedly would be of

(Continued on page 50)

Theodore F. Koop

Theodore F. Koop, Director of CBS News and Public Affairs in Washington, D. C., was born in Monticello, Iowa, in 1907. He was graduated from the University of Iowa in 1928 with Phi Beta Kappa honors. From 1928 to 1941 he was with the Associated Press at their Des Moines, New Haven, New York, and Washington bureaus. While in Washington, he wrote many major news stories, including the AP coverage of the third inauguration of President Roosevelt. In 1941 he joined the staff of the National Geographic Society and later that same year became special assistant to Byron Price, the Director of Censorship. He was appointed assistant director of censorship in March 1945. He rejoined National Geographic in 1946 and remained there until he went to CBS News in January 1948. Mr. Koop is the author of *Weapon of Silence*, a book on censorship published in November 1946. He also contributed a chapter on radio news to *Dateline: Washington*, published in 1949. He was the first radio newsman to be elected to the Board of Governors of the National Press Club and the first—in 1953—to serve as president. In addition to his executive duties with CBS, he is moderator of the CBS television and radio public affairs program, "Face the Nation." In addition, Mr. Koop is a director of the Radio-Television News Directors Association.

Guns that aim t

DELCO SKILL DOES IT!

The pilot guides the plane; the electronic system of the A-4 fire-control unit tracks the target, day or night, for automatic fire control of guns, bombs or rockets—giving the pilot more time to concentrate on flying a streaking jet. The electronic systems built by Delco Radio play a vital part in these high-speed air battles.

themselves

DELCO RADIO HELPS BUILD—

T-38 SkySweeper, self-aiming anti-aircraft gun.

AN/TRC-32 transportable control towers for airfields.

R-390 all-purpose receiver for the Army Signal Corps.

Delco Radio's experience and manufacturing skill are contributing to the low-cost production of radio, radar and electronic systems for military equipment.

Delco Radio has at its command the largest integrated manufacturing facilities in the electronic field, so that it is able to produce from raw materials to finished product, more economically than ordinary assembly subcontractors.

This "under one roof" manufacturing offers purchasers still other advantages—coordinated scheduling, uniform product quality, and on-time delivery.

Delco Radio is ready *now*. For low-cost on-time production of electronic systems of high uniform quality, see Delco Radio.

DELCO RADIO
DIVISION OF GENERAL MOTORS
KOKOMO, INDIANA

DELCO RADIO HAS BUILT

- PULSED GLIDE PATH LANDING EQUIPMENT
- TAIL WARNING RADAR
- NAVIGATIONAL DRIFT INDICATORS
- ENGINE DETONATION INDICATORS
- OXYGEN FLOW INDICATORS
- LORAN RADIO RECEIVERS
- AM AND FM RADIO RECEIVERS AND TRANSMITTERS
- RADAR COUNTERMEASURE EQUIPMENT
- RAZON BOMB CONTROLS
- RT-70 RECEIVER-TRANSMITTERS
- M-403 PROXIMITY FUSES
- R-390 ALL-PURPOSE RECEIVER COMPONENTS

DELCO RADIO IS BUILDING

- A-4 GUNSIGHT-ROCKET AMPLIFIERS
- T-38 SKYSWEEPER ELECTRONIC SYSTEMS
- AN/TRC-32 TRANSMITTER-RECEIVER FOR CONTROL OF AIRFIELDS
- AN/GRC-27 TRANSMITTER AND RECEIVER

DELCO RADIO CAN HELP YOU BUILD

- VEHICULAR COMMUNICATION EQUIPMENT
- TRANSMITTERS AND RECEIVERS
- AIRBORNE COMMUNICATIONS—RADAR
- PACK OR PORTABLE COMMUNICATIONS EQUIPMENT
- ELECTRICAL COMPONENTS
- ELECTRONIC CONTROLS FOR GUIDED MISSILES

interest to the enemy. Yet in Washington today we hear reports that the Civil Defense Administration is not always given—even in confidence—information it needs for proper planning.

Another misconception is that there are some "gray areas" in the field of security information, poorly defined areas where it is difficult to decide whether the security factor is paramount. These areas involve unclassified material—usually scientific data—which first the Commerce Department and more recently the Defense Department have been trying to bottle up. I fear they are trying to bottle a will-o'-the-wisp. I cannot help but feel that security areas must be either black or white, never gray. Information is either of a security nature and should be classified, or it does not involve security and should be released.

In this connection the former deputy director of the Atomic Energy Commission's Office of Intelligence, Professor M. C. Henderson of the Catholic University in Washington, told the American Society of Newspaper Editors last spring: "Let's put no faith in a general atmosphere of secrecy in a 'gray area'. . . . Once we get to a state where we permit the borders of the classified realm to be fuzzy, we are on the road to complete control of the press and all information media."

A third misconception is that voluntary censorship will work as successfully in peacetime as in war. In December 1940, Secretary of the Navy Frank Knox asked editors and broadcasters to withhold virtually all news about the Navy unless officially announced. Editors grumbled but agreed until Knox asked them to suppress news about British warships in American ports. That was too much, for thousands of people could see the ships, and an enemy agent could freely send the news out of the country. A voluntary censorship is impractical as long as international channels of communication are open.

Again in 1948, Secretary of Defense James Forrestal called together a committee of newsmen and proposed institution of a voluntary censorship. He cited several news stories of new weapons and other defense matters as security violations. But the committee persuaded him that the stories had been leaked to reporters by responsible Pentagon officials, and that the Defense Department should put its own house in order before asking the news media to suppress information given them by the government.

That, it seems to me, is the heart of the whole information problem: The government must put its house in order. How can this be done? It is not a matter of writing new directives; President Eisenhower's Executive Order on classifying information in 1953 was a considerable step forward. Rather, it requires a change of attitude on the part of many individual officials. So far they have taken the easy way: When in doubt, classify and suppress. One of the best things that could happen would be for the Budget Bureau to forbid the purchase of any more rubber stamps marked "Confidential" or "Secret." Any man with those stamps on his desk has an overwhelming urge to use them. I suspect that when President Eisenhower abolished the classification of "Restricted," most of the "Restricted" documents were promptly labeled "Confidential."

The problem, then, is getting an official into the frame of mind where he does not ask himself, "How *little* of this information do I have to give out?" Instead he should ask, "How *much* of this can I possibly release?" Perhaps he ought to hang a copy of the Bill of Rights over his desk, as a constant reminder that the American people—his sovereigns—are entitled to the full knowledge of what their government is doing. Or perhaps the people need a special representative in the Pentagon and other departments to prod officials into releasing information.

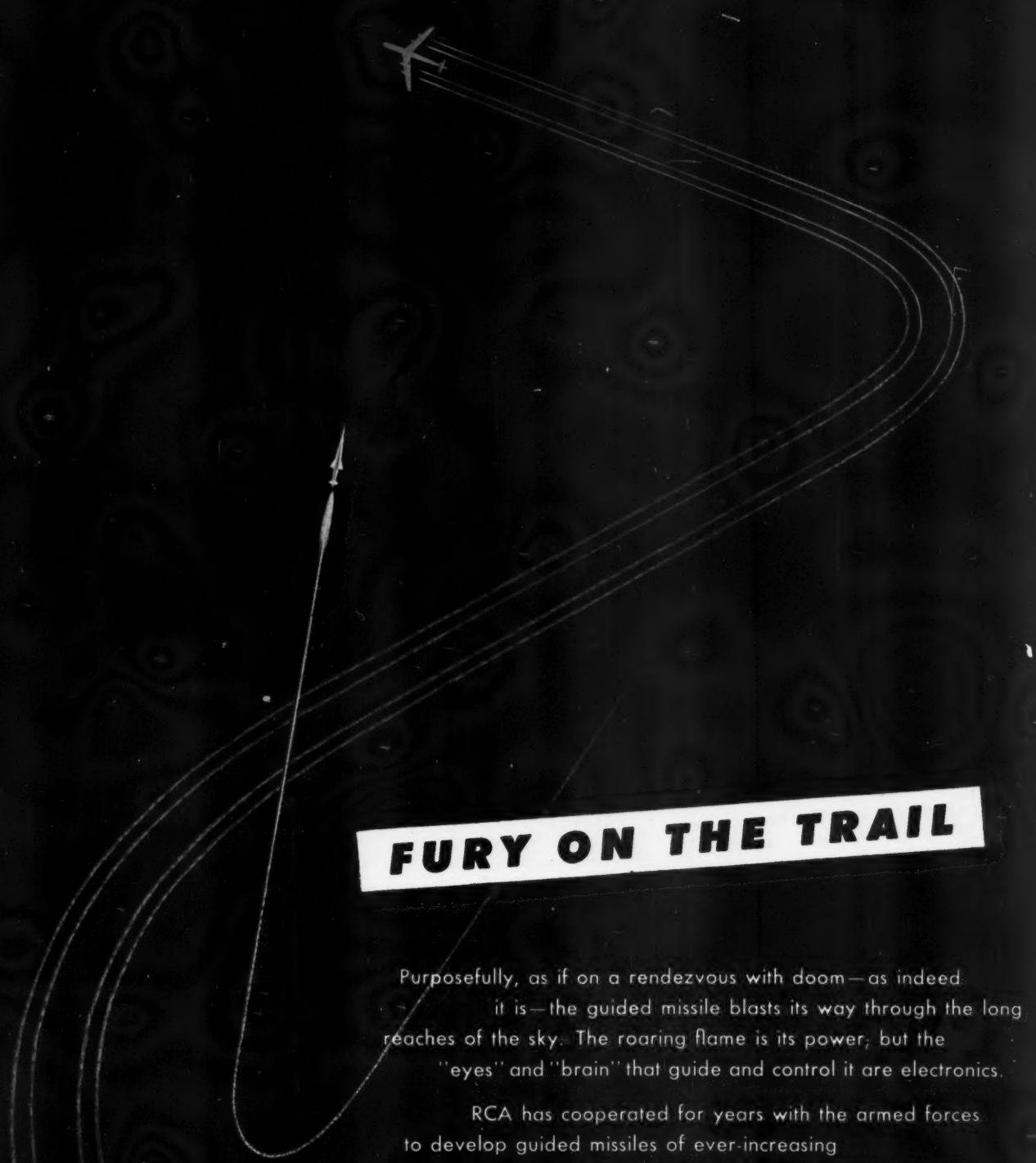
I am not, of course, advocating that we should do away with all restrictions. There are matters of the highest security which must be kept secret. The press and the public do not want or expect them to be released. But I do advocate that these should be kept to a minimum instead of a maximum. It is a far better security system to give the best protection to as few secrets as possible than to fail in keeping the lid on a Pandora's box of miscellany.

We are discussing this subject of security of information at a time when President Eisenhower has made a dramatic proposal: that the United States and Soviet Russia exchange aerial inspection of their military establishments. How this suggestion must have surprised some of the men who play with the rubber stamps I mentioned! It must have turned topsy-turvy their fondest notions about security. Even if the President's bid should come to naught, it still could serve a great purpose by putting into a new perspective the question of how many secrets we really need.

Now, following this bold offer, comes the atoms-for-peace conference and its removal of much of the secrecy that has surrounded nonmilitary atomic work. As the Atomic Energy Commission said, "The collective knowledge of mankind on how to put the atom to work for material progress in all lines will be shared among the technical representatives of the great majority of the people of the world."

These are heartening events. When our leaders take steps to share information of this magnitude once considered secret, they are doing far more than adding to the enlightenment of American citizens. When they recognize that knowledge knows no national boundaries, they are strengthening the bulwarks of civilization everywhere. To paraphrase the motto of the Scripps-Howard newspapers, they are giving light, and the people will find their own way—a way that must lead inevitably to world peace.—END

Here's a view of the crowd at the Airpower Symposium in the Fairmont Hotel. This event has become one of the most important at AFA's annual Convention.



FURY ON THE TRAIL

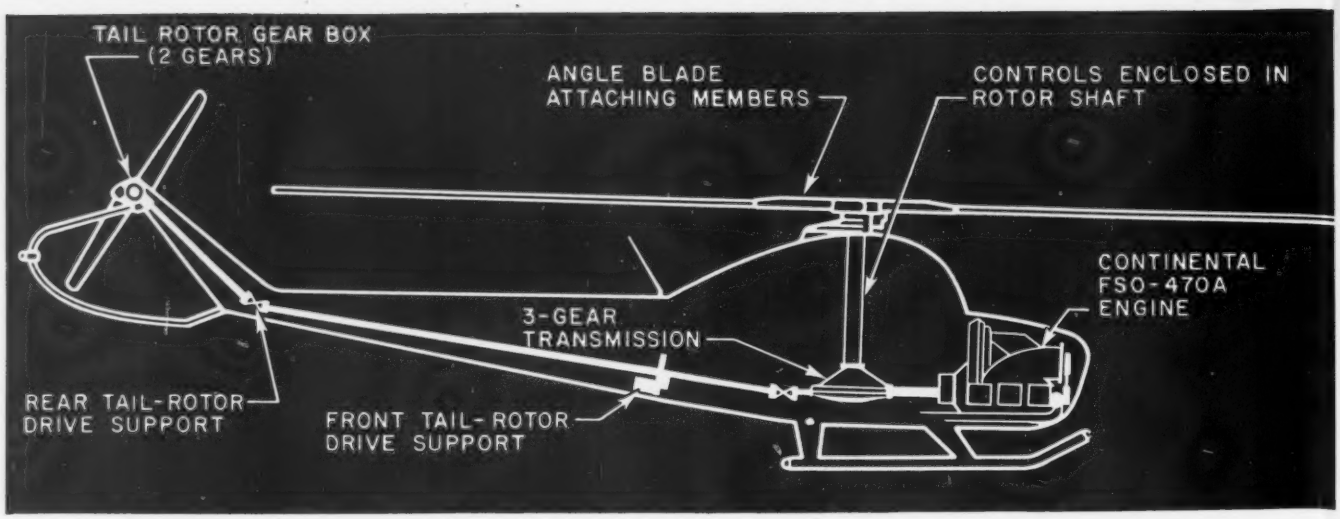
Purposefully, as if on a rendezvous with doom—as indeed it is—the guided missile blasts its way through the long reaches of the sky. The roaring flame is its power; but the "eyes" and "brain" that guide and control it are electronics.

RCA has cooperated for years with the armed forces to develop guided missiles of ever-increasing accuracy and effectiveness . . . the same mutual effort that is constantly being applied to creating, designing, developing and producing complete electronic systems in this and other fields relating to national defense.

Engineering consultation available.
Address Government Department,
Engineering Products Division, Camden, N.J.

RCA

GOVERNMENT DEPARTMENT
RADIO CORPORATION of AMERICA
ENGINEERING PRODUCTS DIVISION CAMDEN, N.J.



From Cessna . . . A New Concept in Helicopters.

Cessna CH-1...designed for less maintenance!

Cessna's rugged, all-metal CH-1 brings outstanding performance to helicopter flying. The new helicopter can climb from sea level to 10,000 ft. in less than 10 minutes. It can hover easily at 15,000 ft., has speed of over 120 m.p.h.!

The simplified mechanical detail of the CH-1's revolutionary transmission, rotor assembly and drive system eliminates many extra parts requiring lubrication and service, cuts down on maintenance costs.

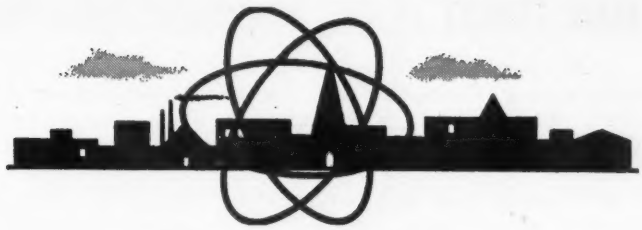
The CH-1's engine location—in the nose of the fuselage—is an example of the new helicopter's functional design. Mounting the engine forward means important savings in installation and servicing time, provides extra cargo, or passenger, space.

Development of the CH-1 climaxes three years of intensive research by Cessna designers and engineers. The new helicopter fills a definite need, is a noteworthy contribution to aviation.

CESSNA AIRCRAFT COMPANY

Cessna®

WICHITA, KANSAS



Religion, Education, and the Hydrogen Age

The Rev. John J. Cavanaugh
Director of the Notre Dame Foundation

AN Englishman has said that Americans are often unimpressive because they simplify everything. We say we "fix" a drink when we mean that we mix a drink. We say dinner is "fixed" when we mean prepared, that we live on a "fixed" income when we mean our income is set and unchanging, that we are in a "hell of a fix" when we find ourselves exasperated by confusion. I hope you will understand if in dealing with such a difficult and broad subject as Religion, Education, and the Hydrogen Age, I proceed cautiously and with some misgiving. I am really in the kind of a fix that the Englishman, with mild profanity, made synonymous with bewilderment. Religion and education are ideas vast in both width and depth, and I must oversimplify phases of the subject that earnestly call for explicit and exhaustive treatment.

All thinking men must agree now that science and technology, great as they are, will not necessarily bring about better peoples, peoples capable of living as one great happy, international family. This is not altogether a truism. From the time of Francis Bacon and until rather recently there was a cult of science-worshippers who contended that the proliferation of gadgets and conveniences for the home, of new medicines and vitamins for the person, of new industrial automatic machines, would create a kind of Utopia. Everyone would be supremely interested in enjoying himself, in using the new leisure to make himself more cultured, in generally relishing and luxuriating in the uninterrupted peace.

We now know that this condition is certainly beyond the power of science, perhaps beyond the power of man at his best, to create. We have gone a long way towards producing a higher material life. Anyone beyond the middle fifties may reflect that he has lived through a single period of fifty to sixty years in which the material standards of life for the person, for the home, for the society have advanced more than in all the other centuries of history. A single United States worker, with power tools, turned out in 1950 as much as three men were able to produce in 1850 if the three of them worked hard for an entire seventy-hour week. A hundred years ago two-thirds of all the energy used originated in the muscles of man and beast, whereas today two percent of all energy used comes from living sources. And, according to the experts, we have not merely climbed to a new plateau of production. We are fast ascending heights whose upper limits cannot be seen. Within another 100 years, these experts think, a single day's work of seven hours will surely equal today's output of an entire forty-hour week. Imagine the number, the variety and ingeniousness of all the things that will then be produced!

Certainly we are already travelling faster than ever before, even though sometimes one is led to question whether we are really seeing more as we swiftly move about. Certainly jets and turbojets, radio, television and the movies are rapidly making physical neighbors of all of the peoples of the world. There can be some reasonable doubt, however, as to whether East and West, North, and South are coming together in their hearts and souls, in habits of courtesy and understanding and mutual sympathy.

The advance of the means of communication makes men aware of important inequalities. Widely scattered peoples of the world know by means of the new instruments of communication that the Western Nations, of whom we are the most outstanding and the most powerful, possess the best farms and natural resources. We have the temperate lands of abundant rain and mild sunshine, where temperatures are favorable to man and beast. Beneath our lands are a great part of the world's known mineral resources.

Between Capricorn and Cancer, on the other hand, lie the world's undeveloped areas. Violent floods, heat, scorching sun, torrential downpours either wear away the soil and breed disease in the steaming rivers and forests, or dry out the land into empty, arid deserts. In our Western World is concentrated not only the greatest wealth but the greatest means of producing wealth. Perhaps eighty percent of the world's income is enjoyed by eighteen percent of the world's people, the bulk of whom live around the North Atlantic.

These facts are dinned into the ears of trade unionists in Africa, of landless Chinese in Malaya, of the unemployed intellectuals in India, of the British workers disgruntled by their relatively low wage rates, of the Italian sharecroppers greedy for land. It is repeated again and again that in the last 400 years Western man has developed and kept the most pleasant and fertile areas of the world, that the nations of the Western World have an average standard of living anywhere up to eight times as high as that of the peoples of Southeastern Asia, that the average expectancy of life in the Western World is about sixty years, whereas that of

(Continued on following page)

India is about thirty, that only one in thirty of our children dies in infancy, while in Burma the proportion is one in five.

Some of us may dismiss these disquieting disparities by arguing to ourselves that Western supremacy came about because of the daring, the spirit of self-reliance, by the get-up-and-go, by the ingenuity and sacrifices of our Western peoples. You and I, with justification, may contend that the United States, at least, owns none of the lands of Asia and Africa, has no colonies, and bears no responsibilities. Whatever may be our own assessment of responsibility, many Eastern peoples think of our American riches, our military and productive power, as the center of the force against them. They find encouragement, too, in the writings of some Westerners who say that nothing more reasonable than economic pressure and national rivalries were the main irrational forces that drove the Western nations to this position of world dominance.

Such a friendly critic of the West as Barbara Ward in her book, *Faith and Freedom*, holds, for example, that conquest of much of Africa and Asia came about because the Western powers were in search of trade and markets. Small tribal societies and weak people fought powerlessly, or disintegrated altogether, under pressure of the white man, when he had a gunboat waiting at the mouth of the river, or a few warships in the harbor ready to blow into bits those brave or brash enough to resist.

The industrialization of Europe made the need for markets and the search for new materials, so that by 1900 practically the entire world was under Western control, at a time when Western nations themselves were losing faith in everything except national supremacy and the material well-being of their own economies.

I am suggesting the kind of contrasts, the kind of thinking and writing that leads to human unrest, to human envy and hatred, which might break the world into conflict, even if a safe understanding between Russia and the United States were soon secured. These are the conditions that Russia has been exploiting against us.

I imagine that President Eisenhower had something of all this in mind when he addressed the General Assembly of the United Nations on December 8, 1953. He said, you will remember, "The United States pledges before the world its determination to help solve the fearful atomic dilemma, to devote its entire heart and mind to find the way by which the miraculous inventions of man shall not be dedicated to his death, but consecrated to his life." This urgent concept may have motivated him when he flew across the Atlantic to take part in the recent conferences at the summit in Geneva. There, one of his main objectives was to suggest gradual, general disarmament, so that the wealth saved might constitute a reservoir out of which all nations could, year by year, help improve living standards across the world. If there are in nuclear energy, as scientists say, great possibilities of power for hitherto undeveloped areas, if the possibility of war can be eliminated, then it becomes possible in the Hydrogen Age that the increase in the standard of living for the entire world, in the next fifty years, may be far greater than the sensational improvement that has taken place in the last fifty years within the United States. Then the frightening light, the heat, and the incalculable power unleashed out in the Pacific, may be the dawn of a new area of peace, founded on reason and confidence, and on the fact that men of all races may really live as neighbors, rather than die in the ashes that their hatreds create.

I believe that President Eisenhower is a realistic, God-fearing man who, providentially, stands as the leader of the world's greatest nation at the most crucial point in the world's history. I am sure that at Geneva he didn't forget, when he sat across the conference table from Khruschev and Bulganin, Mikoyan and Zhukov that they are not only the leaders of Russia but that they are also the world's foremost exponents of the communistic ideology, that whatever they were willing to say or do, they said or did, not for the love of God or because they thought human life is a sacred entity, not because man has rights to freedom and life and the pursuit of happiness. Too recently they have been part of too many unforgetable tortures and murders which their smiles and genteel manners certainly could not make President Eisenhower completely forget.

He must have often reflected, as he moved amongst them, that these cordial gentlemen, according to their own words and according to the repetitious pronouncements of their predecessors and progenitors are leagued in an unbroken, if not unbreakable, unity to conquer the entire world by force and to subject it to Communism. He must have found their evasion of the question of the free vote in Germany and in the satellite countries a consistent and eloquent confirmation of their past beliefs and performances.

Perhaps President Eisenhower kept trying to make himself hope that, not decency, nor morality, but the law of self-preservation had caught up with their thinking. Whatever President Eisenhower thought, I believe he was eminently right in going and in taking part in the conferences, because I believe that he senses the impatient mood for peace moving in the millions all over the world. And, even today this mood can be more significant than Russia's attitude. He will probably go as far as he dares because he knows that without American scientific, technological, and industrial capacity, the hope of developing nuclear energy for the undeveloped countries is a will-o'-the-wisp. He knows we have the pool of scientists without whom the job cannot be done. He knows that technical skills and whole supporting industries must spring up in other countries to make atomic energy productive for peace.

As a military man of extraordinary experience, he knows that for several years only great military strength equipped with the A- and H-bombs has been the inevitable path, not to war, but to whatever peace we enjoy. He is acutely aware that the hydrogen bomb is not, by any means, the last of the products of science that may imperil the peace. In fact, it is surely conceivable to him that the hydrogen bomb may be but the beginning of a series of fantastic discoveries which, used ruthlessly and by surprise, might compel any nation to capitulate.

As President Eisenhower and his advisors assess the full meaning of Geneva and the reasonable hopes of the next few weeks, he will think again and again and again of these things.

Far from lulling the American people into a new sense of security, I think that the Geneva conferences, with their social affairs and affability, have inflamed American expectations to search the future for significant deeds that will indicate a change in the Russian heart. In advocating skepticism and military strength and renewed vigilance, I do not mean to step out of my character as a simple Hoosier priest. But I have been often bewildered by the thinking of some of our American people. They seem to believe that, although we quickly disarmed after the second World War

and Russia swiftly built up its enormous military strength, thereby forcing us to become active in spite of ourselves, we somehow offended and frightened the Russians into the cold war. I hear curious opinions expressed about morality, which is supposed to keep our country powerless to protect itself against a surprise war that might mean the obliteration of the country that was taken by surprise.

It seems clear to me that, because of the possibilities before us, it is urgently incumbent upon both America and Russia to come to an understanding which will effectively preclude all possibility of a surprise war. If either country employs subterfuge to avoid such an understanding, or if either country demands terms that are unjust as a condition of such understanding, the posture of the erring country is fraught with the heaviest responsibilities. The morality or immorality of war is not by any means always decided by which nation initiates physical force. Especially in the conditions, of which we have been speaking, the morality or immorality of war is not by any means always decided by which nation initiates physical force. Especially in the conditions of which we have been speaking, the morality or immorality of war can be determined by the morality or immorality of the causes that lead to physical force. Otherwise, in an age when the first physical blow might be decisive, the possibility of striking first would be denied to the nation that was most moral. And such moral reasoning would subject nations and the world to bow down before the strong, whether the strong were right or wrong, good or bad.

I hope that the developments of the next few weeks will yield impressive evidence that Russia's new attitude will be genuinely fair, so that our suspicions may be abandoned and we can count on their good will and aid to further the program of improvement for the undeveloped nations of the world.

Russia and the United States together must demonstrate that equality of mankind takes in all peoples, whether they be West or East, strong or weak, white, brown or black; that personal freedom and reasonable opportunities of material advancement are to be shared by all; that possession of the good things of the world carries with it the duties of stewardship and of social responsibility; that the claims to justice and hope are valid even for those people who have no hydrogen bomb with which to shock lethargic consciences.

In spite of four centuries of rationalism and the worship of science, in spite of basic hostilities between atheists and those who believe in God despite scandalous disagreements among Christian people, I hope that men in this Hydrogen Age may come to understanding. Moral ideas may triumph over the mightiest physical force. An idea—the "proposition" that all men are created equal and possess inalienable rights—gave birth to this, the most powerful community in the history of man. Faith in human dignity, in human freedom and responsibility, in the laws which safeguard man in his rights and duties, required audacity when that faith first appeared in history. Our Jewish and Greek forbears made acts of faith in the surpassing greatness of the human being at a time when humanity was subject to every kind of physical calamity, when perpetual labor was needed to get the livelihood from the soil and the forest and the sea, when the fatalities of tempest and sickness lay heavily upon the human spirit. The Founding Fathers put this respect for man into a great Declaration that provided the ideology for our dynamic nation. Thank God, in this day so far advanced in power possibilities, we still think everything made by man must be subject and serviceable to Him.

I wish that the intelligentsia and the simplest manual laborers were equally united in faith in God. I wish that in this world crisis we could all pray personally and honestly and humbly with the Psalmist:

"Where can I go to take refuge from Thy spirit, to hide from Thy view? If I climb to the heavens, Thou art there. If I sink down to the world beneath, Thou art present still. If I should take flight at dawn of day and come to rest at the furthest ends of the sea, still would I find Thee beckoning to me, Thy right hand upholding me. Thine are my inmost thoughts. I praise Thee for Thy awful majesty, for the wonders of Thy creation which my own being must needs acknowledge. Thy eyes looked upon me when I was yet unformed. All human lives are already written in Thy record, brought to birth through the long days when they had no being."

I am not asking in the name of religion that simply because of the fears of our time we begin blandly to believe in God and make that belief monitor our daily lives. I am not asking place for God simply because His presence seems useful. I am asking for faith in God, in His creative authorship of the universe, in the dignity of man and his rights and duties, because they are all tied up together. Without God, without the soul in man created by God, man's dignity is a human myth, at one point in history somewhat generously asserted by superstitious religionists, at another time under some hard dictator more realistically denied. I am suggesting there is no merely human reason except self-interest why a powerful nation like ours should compassionately interest itself in far-distant, weak peoples of other colors and customs. I am insisting that man, divorced from God, is neither the master nor the end even of the material universe. Faith alone led to man's advancement, as it alone will lead to his peace.

We have seen to our horror, in our own lives, that once man is made not the master of the material universe under God, but a mere material thing, a creature to be closed in behind some

(Continued on following page)

The Rev. John J. Cavanaugh

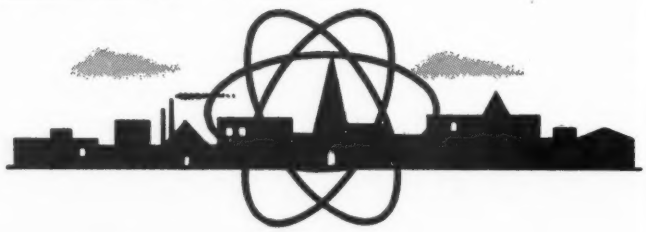
The Rev. John J. Cavanaugh, C.S.C., was appointed Director of the Notre Dame Foundation in 1953 following six years as president of the University of Notre Dame. He was born in Owosso, Mich., in 1899, and entered Notre Dame in 1917. After he was graduated from the Notre Dame College of Commerce in 1923, Father Cavanaugh went to work for the Studebaker Corp. He had become assistant advertising manager when he resigned to study for the priesthood in the Congregation of Holy Cross in 1926. He spent a year in the novitiate and four years of study at Holy Cross College, Washington, D. C., and was ordained in Sacred Heart Church on the Notre Dame campus in 1931. Selected for study in Rome, he received his Licentiate in Philosophy at Gregorian University in 1933. In 1934 he was appointed Prefect of Religion and remained in that post until 1940 when he was named vice president of the University and chairman of the Faculty Board in Control of Athletics. During the years of World War II, Father Cavanaugh assisted the late Rev. J. Hugh O'Donnell, C.S.C., in administering the University. He succeeded Father O'Donnell to the presidency in 1946 and launched a $9,000,000 building program.

kind of artificial curtain and confined to his own environment, he is made ready for dictatorship by first being made a slave.

Man alone, in the freedom of his spirit, can assume the posture of worship and prayer. Unless he does, religion remains a mere intellectual exercise. This posture of worship and prayer is not a symbol of weakness but an expression of the intelligence and will with which he, alone, is endowed and which distinguishes him from the beast. This is preeminently a time when man should fall on his knees and seek God in the confidence that if he seek he shall find. I know that the world is split up into Hinduism and Buddhism, into Mohammedanism and Confucianism, that Christianity is dismembered into dozens and dozens of denominations and sects. I know that wars were as cruel as they could make them when the world was nominally Christian.

But somehow I hope and pray that we are coming to the day when we shall all be seriously one as Christ prayed. Desire for this unity will do much more than reasoning and argument. Honest prayer for it, and the determination to shape one's life in conformity with conscience, will bring it about.

In human history, it is often the day of greatest tribulation that precludes enlightenment and union. If we are big and humble enough to lift up our minds and hearts to God, and, as far as we are able, to assure all peoples equality, the freedom, the well-being that we cherish, if in this day of our strength and prosperity, we can a little more generously let in the warming light of God's presence and His love, by opening up the stubborn enclosures of our souls, we shall find Him so that we will never again let Him go. And in finding Him, we will find the solutions of our immediate problems, and through practical brotherhood with the other peoples of the earth, lay the lasting basis of peace.—END



Community Relations

The Hon. George R. Dempster
Mayor of Knoxville, Tenn.

I BRING you greetings from East Tennessee, where the City of Knoxville rests at the foothills of the Great Smoky Mountains. My city is the home of the Tennessee Valley Authority which over a period of twenty-two years has successfully developed and operated the greatest experiment in welfare ever attempted by your government and mine. The 10,000 miles of shoreline on the Great Lakes of Tennessee is one bit of evidence of the great work done by this governmental agency where our lake-shore line is greater than the combined ocean shoreline of the Continental United States. I am humbly thankful that I was invited here today with the thought that perhaps I might have an item or two of interest to add to your deliberations in sustaining our magnificent Air Force, which to a greater extent than any other agency stands between our country and those who would destroy our freedom.

I never visit this great empire of California without being amazed at the wonderful progress of a sturdy people who, in such a short period of time, have made this great state the garden spot of the world and the mecca for all progressive people seeking greater opportunities in the west. Thousands of your people came from my home state. Included among this great array is the name of late Sen. William G. McAdoo, whose mother fled before the advancing Federal Armies during the seige of Knoxville to refuge behind the Confederate Lines at Gartersville, Ga., and there gave birth to the son who was destined to scale the heights and become a leading contender for the Democratic nomination for the Presidency of our United States. Others have made their contribution to the amazing history of California, and out of respect to their memory, I greet you today.

Several months ago President Eisenhower summoned the mayors of the cities of over 75,000 population to attend a meeting which he had called in Washington, D. C., in connection with civil defense. There were many speakers of note including the President himself, John Foster Dulles, Bedell Smith, and General Chidlaw, that distinguished military man who perhaps has made as great a contribution to our Air Forces as any other member thereof. The general gave an outline of what had been done during the many years he had been a member of the Air Force and of his ambitions for even greater strides in the future. He realized the great problems which face America in civil defense and pledged all-out support of his forces to those of us in the cities needing help and guidance in our attempt to make our contributions to the civilian protection so necessary in the new type of war suddenly thrust upon us as we enter the Atomic Age.

It so happens that in Tennessee we have not been blessed with the deep fertile soil so prevalent in California. A cotton farmer told me only today

that he could raise two bales of cotton to the acre. I marveled at such production and then, trying to be truthful, I had to tell him that we had some land in East Tennessee which we had to fertilize before we could make brick out of it; that for 150 or more years we have been shooting our corn in the hillsides with a shotgun and bringing it down in jugs. We have no land which can grow two bales of cotton to the acre but in lieu thereof we do have another crop that interests droves of tourists who visit our state to enjoy the great beauties and lakes of Tennessee. There is unlimited fishing and hunting. The city of Oak Ridge, where the deep mysteries of the atom were first made known to mankind, is only a few miles from my home city, and then the drive through the majesties of the Great Smoky Mountains National Park, where every shrub and tree native to the temperate zone, with the exception of the California redwood, grows in wildest profusion, undisturbed by the march of time.

When the late great President Franklin Delano Roosevelt (you know I must work Democrat in here somewhere), was looking for a secluded spot where the Manhattan Project with an allocation of $2 billion could operate in safety far removed from the prying eyes of the insidious spies of our enemies, they advised him to come down in East Tennessee and there in Clinch Valley lying parallel to and in the shadow of the Great Cumberland Mountains on the north and the west and the Great Smoky Mountains on the south and east, they established a city with the rural name of Oak Ridge. Other necessities for the successful development of atomic power included unlimited fresh water supply, untold electrical energy, and a loyal native population. East Tennessee had all these requirements. The limpid waters of the Clinch River flowing down over virgin forests, the descendants of those hearty pioneers who earned for Tennessee the honored name of the Volunteer State, and then the tremendous hydroelectric development of the Tennessee Valley Authority completed the cycle, and shortly thereafter the initial atomic bomb was dropped in the seclusion of Yucca Flats, your neighboring state of Nevada. By that action were forged weapons which brought World War II to an end. A few weeks later came the destruction of Hiroshima and Nagasaki.

The more than $2 billion of your money spent in establishing Oak Ridge placed additional burdens upon your Armed Forces, and in order that no prying eyes of spying men might ever violate that territory it became necessary for your government and mine to establish the 516th Air Defense Group and the 469th Fighter-Interceptor Squadron on the McGhee-Tyson Municipal Airport property in my hometown, named in honor of the only son of Gen. Lawrence D. Tyson, who led the 30th Division in the destruction of the Hindenburg line in World War I. McGhee Tyson was the first Tennessee aviator to fall in that great conflict which stopped the Huns in their tracks and saved Europe from destruction. The Air Force has an investment of over $55 million in this air base, and we in Knoxville appreciate the "Umbrella Protection" which is extended over our entire area by the more than 1,300 personnel stationed at that base. These young men, the flowers of our best homes in America, have moved in as our neighbors and have made great contributions to the civic, religious, and spiritual welfare of our city. For this we are grateful.

When General Chidlaw had finished his speech to the assembled mayors at Washington, D. C., he then graciously subjected himself for questioning. This question period finally resolved to a series of complaints of various metropolitan cities whose executive officers seriously questioned the right of the Air Force to establish these bases adjacent to congested areas. They objected to the noise of the roaring jets and suggested that the implements of defense be moved to distant parts unknown. This extended discussion made it appear that the Air Forces were interlopers and unwelcome in our country.

After listening somewhat impatiently I asked for and was granted the floor. In my statement I said: "I am from Knoxville, Tenn., where the 516th Air Defense Group and the 469th Fighter-Interceptor Squadron are established close by our city limits. My farm home is located in the direct line of the take-off of the jets as they roar for altitude in their periodical missions to protect the birthplace of the atomic bomb. At first the roaring exhaust of these modern weapons seemed unusual, but within a short time we became accustomed to the noise as these bullet-like planes disappeared over the horizon by the time the noise of the exhaust reached our ears."

When I heard these complaints registered that day I thought of an experience I had thirty-five years ago when a long-time friend, Johnnie Tracy of Chicago, visited me on a coal-stripping job I had in Western Kentucky. Johnnie's office was on the third floor of 332 South LaSalle Street about eighteen feet from the elevated railroad and on the same elevation. At long intervals of not over eight minutes a rattletrap elevated train rumbled by. Telephone conversations were impossible until the last car passed. In those days there was little restriction against promiscuous horn-blowing, and the noise arising from LaSalle Street was like the bedlam which prevailed on all the streets in Havana, Cuba. The first night when my friend Tracy arrived at the coal-stripping job in West Kentucky, we sat on the porch in the twilight when the frogs began to sing. These frogs are about as big as your thumb, yet in comparison to the braying of a jackass, each small frog had greater volume. I, being accustomed to the noise, had not noticed that the evening serenade was on. Finally, Tracy turned to me and said: "My goodness, George, how on earth are we ever going to be able to sleep tonight with all this noise?"

I take the time to recount this because it has a bearing on the jets

(Continued on page 60)

The Hon. George R. Dempster

George R. Dempster, 67, is Mayor of Knoxville, Tenn., and president of Dempster Brothers, Inc. The company, one of the largest steel fabricating plants in Tennessee, is best known for its Dempster-Dumpster, a device used for the collection of refuse and raw materials.

In 1907, at the age of 19, Dempster went to the Panama Canal Zone to work as a steam shovel engineer. He returned to the US after five years and set up a construction business with his four brothers. Together, they constructed dams, highways, and railroads throughout the South.

Very active in civic affairs, Dempster has served three terms as City Manager of Knoxville, one term as City Councilman, and was elected Mayor for a four-year term starting January 1, 1952. He has also served as Commissioner of Finance and Taxation with the state of Tennessee. He is president of Citizens for TVA, Inc., and past president of the Southern Building Code Congress. Mr. Dempster is married and has two daughters and one son. His son, George S. Dempster, is now on active duty with the USAF.

Space limitations forced us to cut some of the stories with which Mayor Dempster kept his audience entertained.

EVER LAND A JET ON A

U.S. NAVY'S TOUGHEST PILOT-TRAINING PROBLEM MADE EASIER BY WORLD'S SAFEST JET TRAINER.

LOCKHEED **T2V-1**

Once you try it, you know there's nothing trickier than setting down on a carrier at jet landing speed. Add fickle winds to a pitching, yawing, rolling deck, and there's plenty to think about, especially during early training.

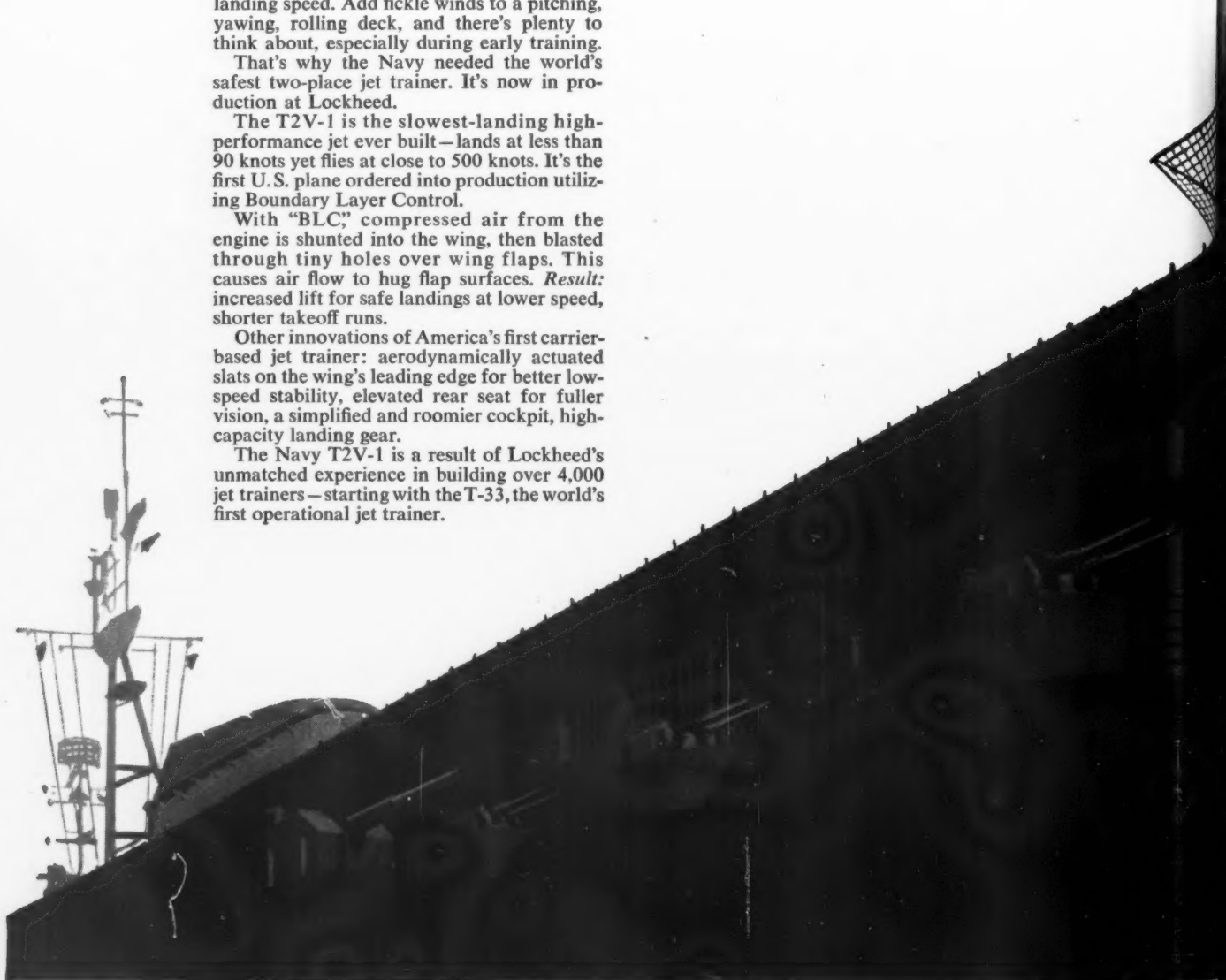
That's why the Navy needed the world's safest two-place jet trainer. It's now in production at Lockheed.

The T2V-1 is the slowest-landing high-performance jet ever built—lands at less than 90 knots yet flies at close to 500 knots. It's the first U.S. plane ordered into production utilizing Boundary Layer Control.

With "BLC," compressed air from the engine is shunted into the wing, then blasted through tiny holes over wing flaps. This causes air flow to hug flap surfaces. *Result:* increased lift for safe landings at lower speed, shorter takeoff runs.

Other innovations of America's first carrier-based jet trainer: aerodynamically actuated slats on the wing's leading edge for better low-speed stability, elevated rear seat for fuller vision, a simplified and roomier cockpit, high-capacity landing gear.

The Navy T2V-1 is a result of Lockheed's unmatched experience in building over 4,000 jet trainers—starting with the T-33, the world's first operational jet trainer.



FLATTOP?

LOCKHEED

AIRCRAFT CORPORATION
BURBANK, CALIFORNIA

LOOK TO LOCKHEED FOR
JET LEADERSHIP, TOO

in the sky over my home town. My family has become so accustomed to the jets that if for any reason they fail to fly over on their periodic runs, I phone the exchange at the air base to inquire as to when the next flight will be over as I find the members of my family are unable to sleep without the accustomed noise. Colonel Langford, the highly efficient commanding officer of that air base, is a great builder of good will. He is ambassador for patriotism and is highly regarded by all classes among our people from the highest to the lowest. Shortly after he was assigned to this base, I, as Mayor of Knoxville, made a deal with him which is approximately as follows: I told the colonel: "If you will just promise me to keep the Russian jets out of the skies over us, your men are at liberty and welcome to fly tree-top tall over our city; and if the majestic elms and the towering oaks are too high we will trim down these beautiful trees to prevent interference with your planes. In contrast to those who complain of your presence, I pledge that if you need additional buildings and would like to occupy our City Hall, we will substitute for our own use quonset huts and let you move in."

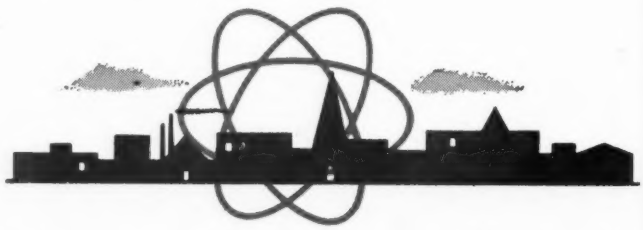
The night is never too dark or too cold or the day too hot to prevent these young pilots from making their usual flights over Knoxville and Oak Ridge. Deep in the darkness of night when I have heard the familiar and welcome roar of the outgoing or incoming jets, I am reminded that away up there above the clouds crowded in by innumerable instruments some mother's son, perhaps in his early twenties, is trying for an instrument landing in the fog. He is not up there hot-rodding through the skies for fun and not necessarily for the salary attached to his activities but primarily because he is a patriotic American citizen, who realizes that the intelligence he possesses is the one connecting link between his instrument and the earth and if that link fails, all is lost. He perhaps would rather be abed, as I, and be able to follow the pursuit of peace. But as long as the Russian bear threatens to walk westward, he knows where his duties lie and does not fail to answer.

Aside from this moral and human factor is one of economics. This air base payroll is approximately $5 million a year. Much of that is spent directly in my home town. We send our emissaries all over the United States seeking additional industries just as California has done so successfully in the past fifty years. Why then should we, in Knoxville, think of turning our backs on a $55 million investment which, aside from the great effect it has upon our economy, protects us from danger of the enemy?

I am proud to be here today to tell this Convention that as for me and my city we shall continue to welcome the jets, and if necessity demands additional length of runways and more acreage, our city council stands ready to provide additional room to extend these facilities. To General Chidlaw for his great contribution to America's safety I bring thanks from my people with the sincere hope that he thoroughly enjoys a well-earned retirement. To his successor and the members of his staff, I assure you that at no place in America are you more welcome than at Knoxville, Tenn. It is a wise provision of nature that each of us can have the best place on earth to live. This is as it should be, and perhaps that is what inspired the young pilot who was shot down over Korea to ask for a pencil and paper when told that he was mortally wounded. I feel about Tennessee as he did, when he wrote:

"When this long, cruel war is over and I toil and fight no more, don't bury me in this foreign land upon this foggy shore. Take me back down South in Dixie where the Tennessee onward sweeps and in the shadow of the Smokies it is still, and I shall sleep."—END

Harris & Ewing



Civil Defense

Brig. Gen. Thomas R. Phillips, USA (Ret.)

Military Analyst,

St. Louis Post-Dispatch

AS FAR as civil defense is concerned, the country and the administration appear to be betting that there will never be a war. Federal Civil Defense budgets run less than $100 million annually while military expenditures are about $40 billion. The reality is that the war could be lost at home if destruction were serious enough through lack of adequate civil defense just as surely as it could be lost because the Strategic Air Command was too small to survive and complete its task or because our air defense is inadequate.

No nation has ever known catastrophe of the scope that would result from all-out nuclear war. In the recent civil defense exercise, "Operation Alert," fifty-seven cities were assumed to have been hit with thermonuclear bombs. The estimated results in human casualties were over eight million killed and more than six million injured. No estimates were published about how long railroads would cease to function over much of the United

States, about what would have happened to other communications, nor about the areas poisoned by fall-out that would have to be evacuated for periods from a few weeks to more than a year. It might be noted in this connection that it still is unsafe, a year and one-half after the March 1, 1954, thermonuclear test, for the Marshall Islanders to return to the islands from which they were evacuated.

The estimates of casualties in Operation Alert had no relation to reality either. For the purposes of the exercise it was assumed that one-megaton thermonuclear bombs were used on most of the targets. If ten-, twenty- or forty-megaton bombs had been used, the casualties would have been much greater.

A much more serious error in the exercise I believe to have been the planning assumptions as to the enemy targets in this country. Presumably these assumptions were given to the Civil Defense Agency by the Defense Department. They read: "If this country were attacked, a primary objective of the attacker would be to destroy our production capacity and our will to resist. The most probable method of obtaining this objective would be to attack our centers of industry, population, and government."

This assumption, it seems to me, is not valid. We all know that the first targets of our Air Force would be the enemy's long-range airdromes; secondly, his tactical airdromes and, finally, centers of industry and communications. While possibly our short-range and long-range Air Forces combined can attack all three at once, the enemy's could not.

Our plans are based on the need first to defend ourselves against annihilation by the enemy's long-range air force. We should assume that the same motives will animate him. His first-priority targets, then, would be our peripheral bases around the world and the SAC bases in the United States.

If that is the case, we shall have civil defense and all the agencies of the government breaking their necks to save cities which are not targets, while no preparations are made to preserve and keep our SAC bases, which are our means of winning the war in operation. I have seen lots of White (emergency) Plans made by the Armed Services to come to the aid of cities, but I have never heard of any plan by civil defense or any civil organization that was devoted to keeping the SAC bases in the United States operational.

Naturally SAC would disperse if there were a nuclear attack on the United States. But that is only a limited answer. As long as it was a primary target the civilian employees and suppliers, who are essential to keep operations going, would be apt to say to themselves: "Why should I stay here and be vaporized? My first duty is to my family." And with that he might disappear.

If SAC were the first target, what cries would not come out from cities whose airports were taken over by SAC when it dispersed? The city which might otherwise have been spared becomes part of the airport target.

It seems to me, therefore, that the first priority of civil defense—or whatever name should be given to the organization set up to keep the economy and life of the United States going in a nuclear war—must be to keep SAC operational. Everything must be subordinated to this. Primarily, it is the operations of SAC that will end the ability of the enemy air force to injure us and primarily it is SAC that will end the war.

Civil defense today is devoted primarily to rescuing the injured and to planning to minimize the effects of attack. In my opinion these are secondary and not primary problems. Let us do them if we can, but first assure the continued capacity of SAC to operate. This means that getting airplane fuel to SAC bases is more important than picking up the pieces of this or that city. It means that SAC must be given the right to obtain and hold by law the necessary skilled personnel to keep operating. It means also that those in and out of uniform must have assurance that their families, whom they cannot care for, will be priority wards of the communities where they live.

As I noted when I started, the United States appears to be gambling, as far as civil defense is concerned, that there will not be a war. It also has not made up its mind as to how long a nuclear war would last. This is of enormous importance to all civil defense planning as well as to all military planning.

"How long will it last?," I asked one of the senior staff at SHAPE. He answered with a shrug: "Two weeks? Two months? Seems a good answer."

It probably will be decided in the first two weeks of nuclear air operations. It may drag on for a while with lesser operations, but in that time the attrition of the long-range bombing forces and the destruction of means of communication should tell the tale. The rest will be essentially mopping up operations and the restoration of order and existence in the territory of the defeated.

There are other implications for civil defense if the war is to be short. It would mean that our war industries would take second place in protection. If the war is short their products will never be used in the battle. If we could feel assured that the war would be short, it might be better to close them down and evacuate their work force. It might be better partially to evacuate the cities that are almost sure to be targets as soon as the war starts and to keep them evacuated until the course of the war shows them to be safe. But throughout all such actions the primary consideration should be to keep SAC going. Everything else is secondary. Possibly we cannot afford to accept the idea of a short war. But at least the possibility should be taken into account in all planning. Very shortly after a war starts we should know.

Although civil defense, in my opinion, has its eye on the wrong ball in its planning assumptions and priorities, I am afraid also that its operations not only will not help but may hinder military operations.

The Federal Administrator of Civil Defense when directed by the President, after taking into consideration the military requirements of the Department of Defense, may require "any Federal department or agency to provide: (a) Their personnel, materials and facilities to Administrator for the aid of the states." A little more clearly, the Federal Administrator of Civil Defense in an emergency can take over the Armed Services and direct them to operate as subordinated agencies of civil defense.

Public Law 920, called the Federal Civil Defense Act of 1950, is what I quoted above. There is a saving clause in it, but will it be effective? Operation Alert provides a hitherto concealed example. As part of his proclamation, of which more later, the President for the purposes of the civil defense exercise, gave the Administrator of Civil Defense this authority. He also declared nation-wide martial law which gave the Armed Forces, especially the Army, a full-time job of restoring order and enforcing civil law. Nevertheless the Federal Administrator of Civil Defense ordered the First Army to send twenty thousand men out on a civil defense mission conceived by civil defense. It would seem as if when martial law had been declared and the Army had been ordered to enforce the law and restore order that the Administrator of Civil Defense would immediately become subordinate to the Army. But apparently civil defense did not think so.

The incredible confusion that could result from dual authority, or the conflict of authority, is apparent. In the

(Continued on following page)

emergency there is no question but that the military temporarily would be supreme and the conflict would be settled quickly with the Civil Defense Administrator subordinated. But it should be settled before the time comes, not fought out while people are dying, as officials debate.

The President's proclamation in Operation Alert had been kept secret, although there is nothing about it that could be called classified by the most ardent security officer. I have learned that in the preamble it proclaimed a nation-wide state of martial law that (1) suspended the writ of habeas corpus; (2) called on the Army to enforce the law pending establishment of civil authority; and (3) gave the Administrator of Civil Defense the authority under Public Law 920 to direct the other departments and agencies of the government to act under its authority.

Had this been real, it would have been the first time that nation-wide martial law had been proclaimed. Together with the instructions to the Army to enforce the civil laws, it put the country under the control of the Army. The Army was to relinquish control as soon as the civil courts and government were able to function.

The order to the Army to enforce the law was in direct violation of the Posse Comitatus Act. After the Civil War, the Army had been used regularly in the South to enforce the law and to police elections. Congress got tired of this and passed the Posse Comitatus Act which provided that the Armed Forces could be used to enforce the law only when specifically authorized by the Congress. So this part of the proclamation was illegal. It was unquestionably a necessary act and would have been carried out. It was made necessary because the Administration will not ask for and the Congress is reluctant to pass, the necessary standby laws to cope with a real emergency.

Suspension of the writ of habeas corpus was also contrary to the decision of the Supreme Court about suspension of the writ of habeas corpus in the Hawaiian Islands. The court held that the writ of habeas corpus could not be suspended unless there was actual violence. In Operation Alert the Attorney General wanted the writ suspended so that he could pick and confine without an immediate hearing the many thousands of suspected subversives in the country before they could do real damage. In another sense it is doubtful if the President had authority to suspend the writ of habeas corpus. Chief Justice Chaney held that only Congress can authorize the suspension of the writ. In March 1863 the Congress authorized President Lincoln to suspend the writ. So this showed another instance where standby legislation should have been asked for and passed.

How well could civil defense perform what it seems to consider its primary function, that of caring for the evacuated and injured? Not too well, I fear. It is by law organized on a state and local basis. The Federal Civil Defense agency is only a coordinator.

Like passing their own divorce laws and operating their own schools, the states and local communities are supposed to save themselves from nuclear attack. Unfortunately, their resources are not equal to the task, and nuclear attack will be no respecter of state boundaries.

By law the Administrator of Civil Defense is authorized to "assist and encourage the states to negotiate and enter into interstate civil defense compacts." We might try to visualize how this would work out if Chicago, for example, were the target of a large bomb. I doubt that the resources of the eight neighboring states would be adequate to provide hospital space for the injured, and there would be difficulty in housing and feeding the evacuees.

The closest states are Minnesota, Wisconsin, Iowa, Illinois, Missouri, Indiana, Ohio, and Kentucky. All their transportable resources would be necessary to help pick Chicago out of the ruins and especially to restore transportation facilities. But suppose Milwaukee, Minneapolis, St. Paul, St. Louis, and Cleveland were also bombed at the same time? What would there be to spare for Chicago? Or, suppose they had not been bombed, but feared they might be? What would they then be willing to spare for Chicago? Nation-wide such an attitude would actually prevent the use of available resources to restore the life of the nation as well as to care for the injured and homeless.

In the case of Chicago it would have to depend for aid from the neighbors by voluntary compacts which certainly would not work. The eight states in the region are also divided among three different civil defense regions and hence there would be conflicts even on using all available Federal Civil Defense resources.

I have said enough to show I believe that civil defense as presently organized as a state and local responsibility is hopelessly inadequate to fulfill any of its functions. It has no place or authorities to restore the economic life of the country. It counts on the resources of the Armed Forces for help, but not on helping them. Its authorities and plans are inadequate to care for the injured and homeless. I want to emphasize that this is not the fault of the Civil Defense Agency, which has done a remarkable job under the assumptions of the laws creating it and with the relatively tiny funds voted by Congress.

The real fault, in my opinion, lies with the failure of the Armed Services to recognize that civil defense in a nuclear war may be just as important to the survival of the nation as SAC or the Air Defense Command. The attitude of the Armed Services has been: Let the civilians handle civil defense; we have a war to fight.

The Hopley Committee in 1948 recommended that civil defense be established in the Defense Depart-

Brig. Gen. Thomas R. Phillips, USA (Ret.)

Brig. Gen. Thomas R. Phillips was born in Black River Falls, Wis., on January 27, 1892. He attended the University of Washington and is a graduate of the Air Corps Tactical School (1928), the Coast Artillery School (1929), and the Command and General Staff School (1936). He was commissioned a second lieutenant in the Coast Artillery Corps, USA, in 1917 and rose to the rank of brigadier general in 1943. From 1941 to 1947 he served as chief of staff, Antilles Department; director of personnel administration, Service Forces, ETO; and deputy chairman of the Joint Export-Import Agency; US-United Kingdom, Office of Military Government in Germany. He retired from active duty in 1950.

General Phillips, now military analyst for the St. Louis *Post-Dispatch*, has been a military writer since 1923 and has authored many military books and contributed to US and foreign publications. His latest article for AIR FORCE Magazine was "Is Civil Defense Too 'Civil'?", August '55. At this year's AFA Convention in San Francisco, General Phillips received an AFA Citation of Honor for "distinguished newspaper articles on the expansion of the Soviet air arm and the requirements of the USAF."

ment under an assistant secretary. This would have provided for the necessary military planning and coordination which no civilian organization is able to do. It would have provided for federal rather than state responsibility while at the same time local resources would have been used to the fullest. It would have made civil defense priorities possible on a national scale, instead of having them on a state and local scale as at present.

It seems to me that the Defense Department must recognize that civil defense is too important to be left to the vagaries of coordination between states, and that its hand in civil defense may be needed to keep SAC flying and the nation going. The President recognized the inadequacies of the present efforts of coordination when he declared nation-wide martial law during Operation Alert. This immediately put civil defense on a national basis, but on a national basis without any national plans, and with confusion of authority between the Administrator of Civil Defense and the Army. The lessons seem clear to me. The time has arrived for a new look at the concepts on which civil defense is based and for new legislation from that recommended before the Soviet Union had exploded their first atomic bomb.—END

Engineering Versatility

If you enjoy diversified assignments, check your opportunity with Fairchild. We're looking for engineers experienced in

Aero Design
Stress Technology
Weights Technology
Design Coordination
Engineering Test Lab Coordinator

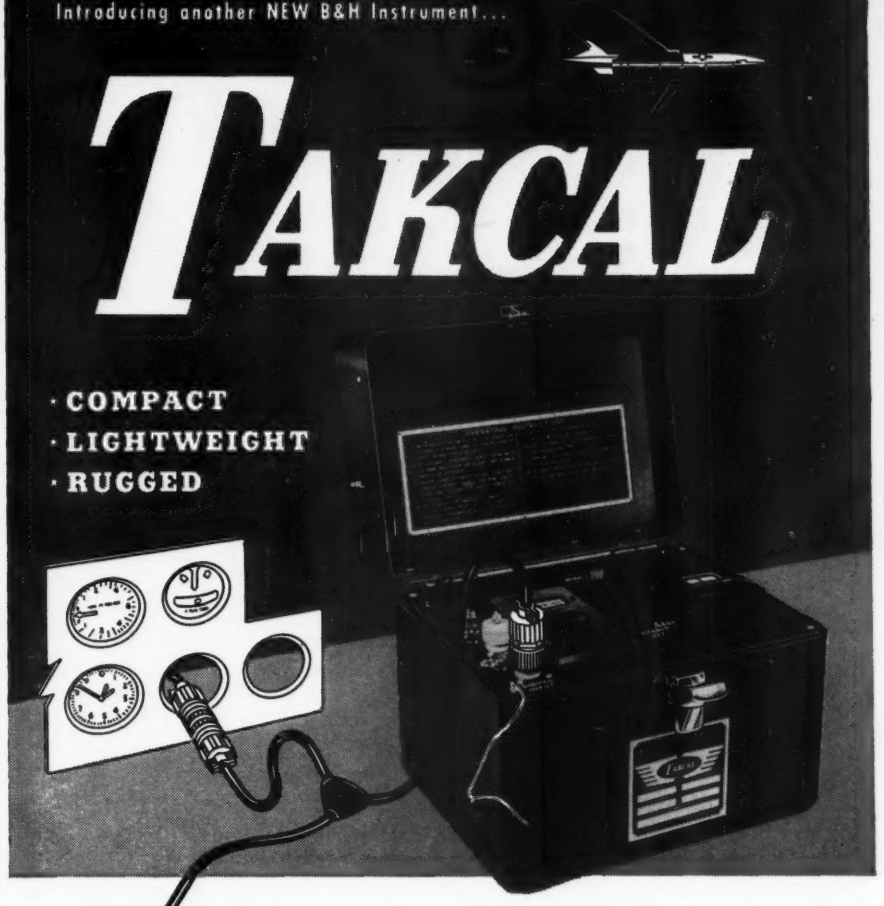
Write our EMPLOYMENT MANAGER

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
805 PENNSYLVANIA AVENUE
HAGERSTOWN, MARYLAND

Introducing another NEW B&H Instrument...

TAKCAL

· COMPACT
· LIGHTWEIGHT
· RUGGED

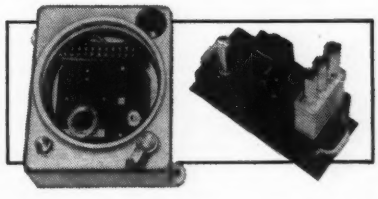


Reads Jet Engine Speed to Guaranteed Accuracy of 10 RPM in 10,000 RPM (±0.1%)

The new B&H TACKAL incorporates a refinement of the frequency meter principle. It operates in the low (0 to 1000 cps) range, reading the frequency of the tachometer generator on a scale calibrated in percent RPM corresponding to the engine's RPM. In addition the TAKCAL checks the tach system. The TAKCAL circuit and tachometer are parallel so that readings can be made simultaneously to determine the accuracy (or inaccuracy) of the aircraft's tach system. The TAKCAL operates during the engine run to properly set up engine controls for maximum economy and safety.

Originally developed as a component part of the J-Model JETCAL ANALYZER, the TAKCAL is now available as a separate unit for use with all earlier models of the JETCAL TESTER.

The TAKCAL operates accurately in all ambient temperatures from —40°F. to 140°F. Low in cost for an instrument of such extreme accuracy, it is adaptable to application in many other fields.



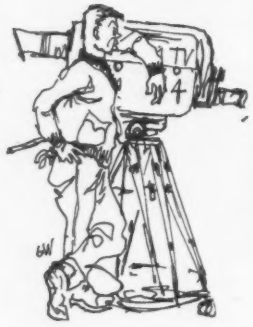
Explosion-proof TAKCAL for special applications. Measures 200 to 7500 RPM, direct reading, with ±0.1% accuracy.

For full information write or wire . . .

TAKCAL
B & H INSTRUMENT Co., Inc.
1009 Norwood • FORT WORTH 7, TEXAS

At the Convention

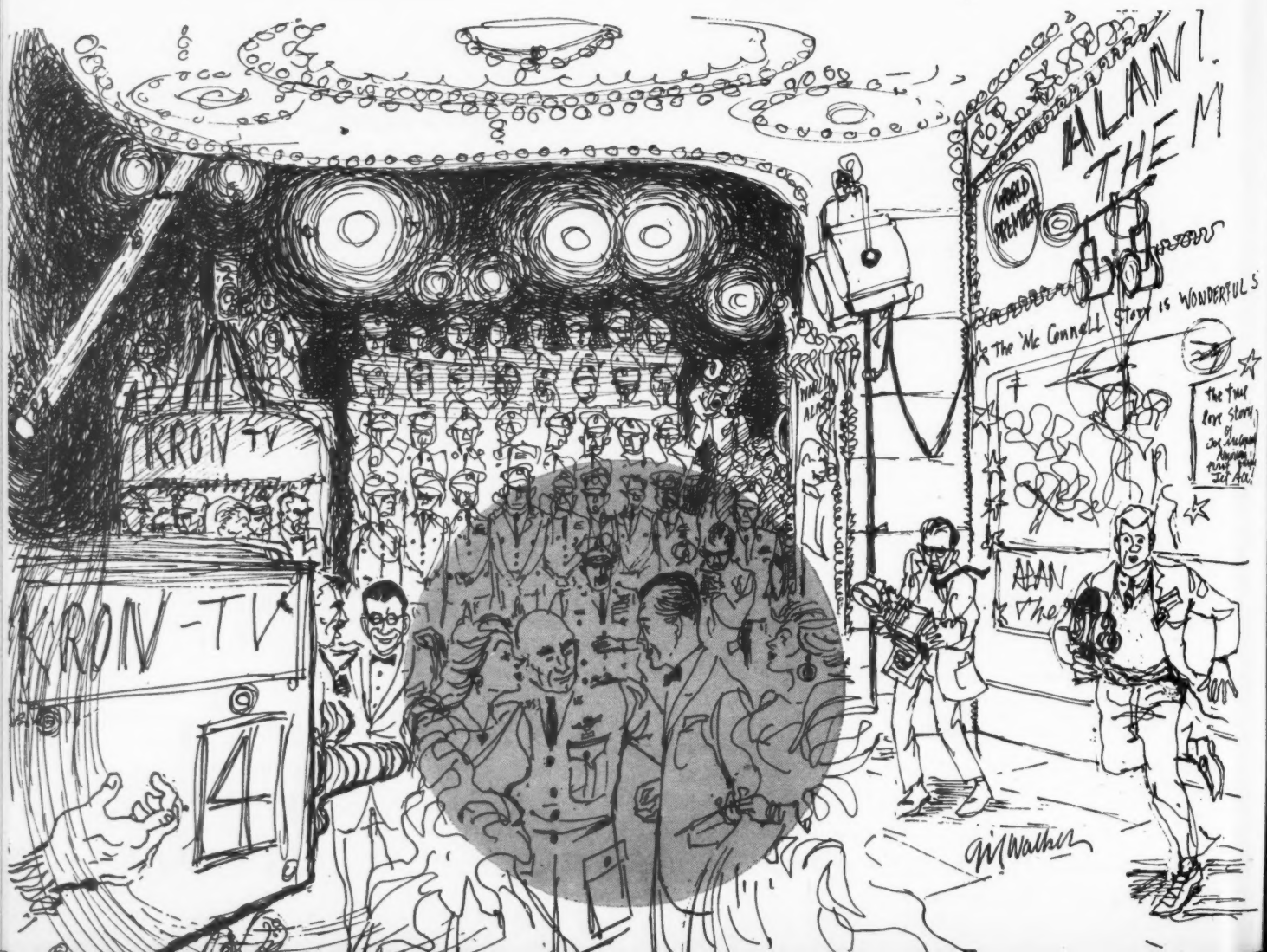
With Sketch Book and Camera



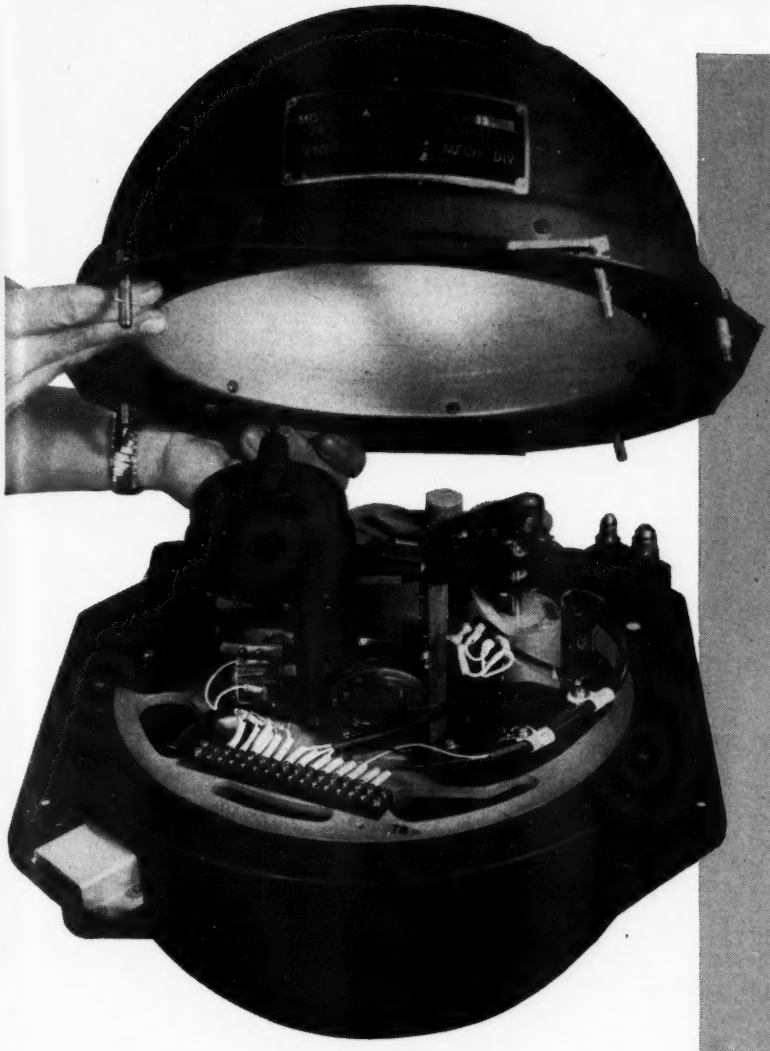
THE AFA Convention went coast-to-coast when Steve Allen's NBC show "Tonight" carried part of the world premiere of the new Warner Brothers film, "The McConnell Story." In the picture, Alan Ladd played America's first triple jet ace, with June Allyson as his wife. The premiere packed Convention-goers in at San Francisco's huge Fox Theater. For more Convention highlights, see the following pages.

Outside the theater during the NBC telecast are Anita Ekberg, a former Miss Sweden; Joe E. Brown; June Allyson, a star of the film; and Hy Averbach of the "Tonight" show cast.

Before the premiere outside the theater there's a melee of Hollywood stars, AFA dignitaries, USAF officers, the Parks AFB choir, and cameramen and TV technicians.



CUTS "IDLE TIME" WASTE!



General Mills Flight Recorder eliminates needless plane inspections

No more costly guesswork in ordering structural inspections of your aircraft! With General Mills Flight Recorders on your planes, you can determine instantly whether unusual turbulence or hard landings have made inspections necessary. In addition, the Recorder supplies statistical information of value in checking your operational and safety standards.

You will save money, keep planes in the air and maintain schedules more efficiently when your aircraft are equipped with these lightweight, compact instruments. They employ no electronic circuitry, thus offer a high degree of reliability, low maintenance and assured repeatability.

Check these features of the GENERAL MILLS FLIGHT RECORDER

- ☐ Records altitude, airspeed, vertical acceleration and direction of flight.
- ☐ The flight record is protected to withstand 2,000°F heat for a half hour, shocks up to 100 G.
- ☐ Weight is about half that of other commercial recorders measuring the same functions.
- ☐ Recorder continues to operate for a minimum of 10 minutes following power failure.
- ☐ No electronics—provides reliable results with a minimum of maintenance.
- ☐ Inscribes a continuous 300-hour recording on aluminum foil—a direct, permanent record that requires no photographic processing or magnetic playback.
- ☐ No special remote sensing pick-ups required.

FULL DETAILS on the General Mills Flight Recorder will be gladly sent on request. Write, wire or phone: Sales Dept., Mechanical Division of General Mills, 1620 Central Ave., Minneapolis, Minn. GRanville 8811.

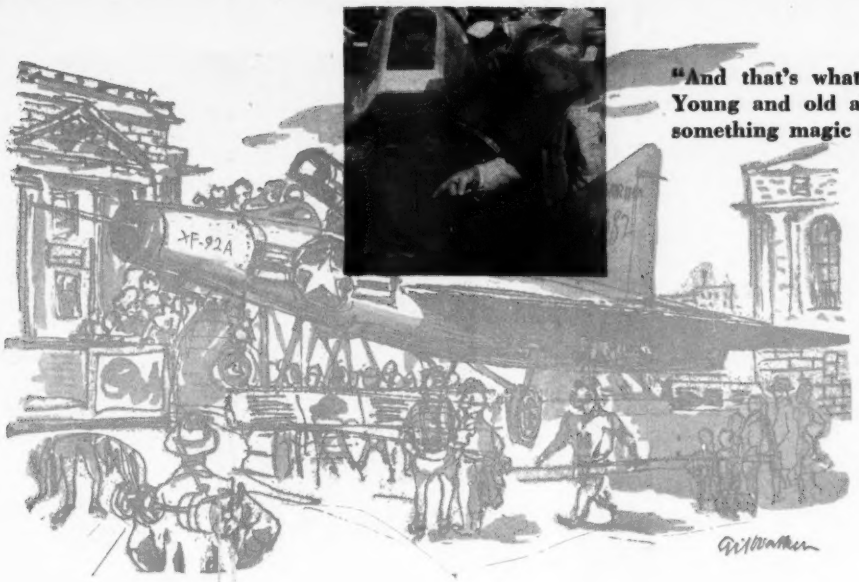
MECHANICAL DIVISION OF General Mills, Inc.

While at the AFA Convention in San Francisco, Gil Walker, our roving artist, roved to the famed Top of the Mark (above) to see how the delegates relaxed in the few minutes they could manage during the week's busy schedule. From there he hied himself to the sprawling Civic Auditorium to sketch highlights of the AFA Airpower Panorama (bottom of page). There, in a 50,000-foot-square exhibit area, seventy-seven companies, seven major USAF commands, the ANC, and CAP had handsome displays.

ABOVE: Col. Rennie Kelly of Washington, D.C., low gross winner of the AFA Golf Tournament, proudly clutches the trophy Joe E. Brown has just given him.

RIGHT: At Friday night's Wing Ding Ball, emcee Ronald Reagan has a big greeting for AFA's Joe E. Brown.

LEFT: A view of part of the AFA Airpower Panorama, the largest indoor aviation exhibit ever seen in the country, where seventy-seven companies set up their display areas.



"And that's what makes it tick." Young and old alike—there's something magic about airplanes . . .

One feature event of the AFA Convention was the Airpower Panorama, hailed as the "Aviation Show of the Year." Here, on display in a block-square showcase, the airpower weapons and equipment of today and tomorrow told the story of how the products of industry and the men and women in uniform are united into a team dedicated to freedom and security. The Panorama provided a meeting place for the producer, the buyer, the user, and the air-minded public. Outside the Civic Auditorium, a group of aircraft on display (see above) attracted many, and lines formed as young and old waited their turns to peer in cockpits and at engines. Another popular Convention event was the Wing Ding Ball on Friday night, emceed by movie and TV star Ronald Reagan. During the two-hour stage show, Joe E. Brown (see cuts) presented trophies to the winners of AFA's Golf Tournament.—END

"Aviation's Man of the Year," Gen. Nathan F. Twining, winner of AFA's top award, the H. H. Arnold Trophy.

Maj. Gen. Lucas V. Beau, who won AFA's Vandenberg Memorial Trophy for air age education.

Dr. John von Neumann accepts AFA Science Trophy he has just received from Board Chairman Gen. George C. Kenney.

Airpower Awards

Six trophies and seven Citations of Honor are presented at the annual Airpower Banquet as AFA's Ninth Convention comes to a close

IN THE climax to the Air Force Association's ninth Airpower Banquet, held this year on August 13 in San Francisco's Sheraton-Palace Hotel, AFA's top awards were presented in recognition of distinguished service to airpower. Six awards were major AFA trophies and seven were Citations of Honor.

● The H. H. Arnold Trophy, AFA's highest honor, went to USAF Chief of Staff Gen. Nathan F. Twining (see cover). His citation, designating him "Aviation's Man of the Year," said, "At this point in mid-century, airpower comes of age as a positive instrument for peace as well as a vital deterrent to war. The USAF, fulfilling the prophecies of its pioneers, has become the decisive element in the Free World's continuing search for a return to the reasoned processes of diplomacy in deciding the fate of nations. General Twining is an outstanding airman and military statesman who has met the challenge of the times. He has contributed the leadership necessary to bring the Air Force to its present state of maturity and world importance."

● The Hoyt S. Vandenberg Memorial Trophy, given for air age education, went to Maj. Gen. Lucas V. Beau, National Commander of the Civil Air Patrol. General Beau, a pioneer airman who has headed the CAP since 1947, was cited for his work in "awakening the interest of young people of America in the airpower concept."

● The Science Trophy was awarded to Dr. John von Neumann, an Atomic Energy Commissioner and chairman of the Scientific Advisory Board committee on the AF's intercontinental ballistic missile program. He was cited for his "major contributions in the field of automatic, high-speed digital computation, which has become vital

Brig. Gen. Thomas Phillips (right) hears AFA's Gen. Spaatz read his Citation.

AFA President Alison cites Lt. John M. Conroy for his round-trip, one-day, coast-to-coast flight in an F-86A.

Band of America leader Paul Lavalle receives his Citation of Honor from outgoing AFA President John Alison.

General Kenney presents Arts and Letters Award to Vern Haugland, Associated Press Aviation editor.

General Kenney reads Flight Trophy citation to Mrs. George Welch, whose husband was killed testing F-100, and Maj. Stuart Childs.

Lt. Col. James A. Poston, Ohio ANG, receives Earl T. Ricks Memorial Trophy as winner of the AFA-sponsored, all-jet, California-to-Michigan event.

to further progress in all phases of military technology, particularly thermonuclear weapons and intercontinental missiles."

● AFA's Flight Trophy was presented jointly to USAF test pilot Maj. Stuart R. Childs and the late George S. Welch, a North American Aviation Co. test pilot killed in October 1954 while flight-testing the F-100 Super Sabre. Major Childs continued the F-100 tests. The pair were cited for their work in advancing the time when the AF got its first supersonic fighter. Mrs. Welch was at the Airpower Banquet to accept the trophy (see cut).

● Vern Haugland, aviation editor of the Associated Press, received AFA's Arts and Letters Trophy. His citation said, "The impact of aviation upon a free society has produced a new type of newsman—the aviation writer. Vern Haugland typifies the highest virtues of the working press in its task of interpreting the air age to the American public."

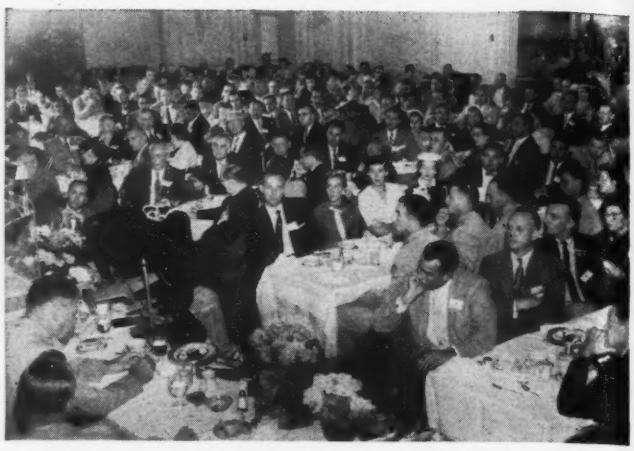
● The Earl T. Ricks Memorial Trophy went to Lt. Col. James A. Poston, of the 166th Fighter-Bomber Squadron, Ohio Air National Guard, who won top honors in the AFA-sponsored all-jet event between Ontario, Calif., and Detroit, Mich., in July.

AFA Citations of Honor went to the US Junior Chamber of Commerce for the group's sponsorship of "Project Top Flight," a community relations program; to Brig. Gen. Thomas R. Phillips, USA (Ret.), military analyst of the St. Louis *Post-Dispatch*; California ANG pilot 1st Lt. John M. Conroy; film star and AF veteran Jimmy Stewart; film company executive Jack L. Warner; Paul Lavalle, leader of the Band of America; and USAF Capt. Edward G. Sperry, for his tests of downward-ejection seats.—END

Also in San Francisco . . .

Night Fighters

The Night Fighter Association, meeting in conjunction with the AFA get-together, heard a solemn warning from Lt. Gen. Frank F. Everest, DCS/Operations, at the group's luncheon on Saturday, August 13 (see text below). In addition, General Everest presented the Hughes Trophy to the 496th Fighter-Interceptor Squadron, Landstuhl, Germany, USAFE, as the "outstanding all-weather interceptor squadron in the USAF, world-wide." Squadron commander Lt. Col. Robert R. Fishel and a representative group from his unit were on hand to accept the award. The trophy, a huge silver bowl, is presented annually by the Hughes Aircraft Co., Los Angeles.—END



Part of the crowd at the Night Fighter luncheon before the Hughes Trophy presentation. The Night Fighters elected Col. Victor Milner, Jr., their next President.

FRANK F. EVEREST

Are We Forging the Tools of Extinction?

TEN years ago this month the world's first atomic bomb exploded over Hiroshima and practically erased it. That was the beginning of a profoundly revolutionary age in human society and human progress. It is an age full of unprecedented threats and unprecedented promise.

The threat is so obvious that it needs no further description or analysis. As you all know, both the United States and the USSR are engaged in stockpiling nuclear weapons, perfecting methods for the most effective vehicles for the delivery of these weapons and for the best possible defense that can be provided against their delivery. We have not only a large family of little and big atomic weapons, but also a growing arsenal of more devastating hydrogen bombs. The Soviets are making similar progress. Humanity today is equipping itself with the means to bring about its virtual extinction in the event of an all-out war with such armaments.

The atom, when harnessed in an atomic bomb, appears to be an evil thing. However, this same atom possesses beneficient potentialities which can scarcely be exaggerated. The same science and technology which has produced weapons of incredible destructive power in the last decade have, at the same time, clearly demonstrated the great benefits which can accrue to mankind through the application of the atom to problems of power for industry —power for the economic and social advancement and general physical betterment of all nations. Likewise, great progress in the fields of health, agriculture, and many other applications of the atom lie just ahead of us. The prospect is bright indeed if only nations can learn to live in decency and in peace. Assuming that nations continue to be sane and rational, it is reasonable to expect progress toward a just peace can be achieved, although such progress will be slow and tedious.

So much for the pessimistic and optimistic aspects of this atomic age which we have created. Regardless of pessimism or optimism, we, in this nation, must face to the immediate problem of defending our liberty and our institutions. This problem is as serious today as it was to the Minutemen of 1775; in fact, it is a great deal more serious for the threat is far greater. Many informed people adhere to the belief that, although there have been significant shifts in Soviet tactics and diplomatic manners, the long-range objectives of the Kremlin remain unchanged and that these objectives are incompatible with freedom as the Western world understands freedom. With this particular audience, I need dwell no further on this matter. I am sure we all share the conviction that this country is confronted today with heretofore undreamed dangers. Therefore, we must maintain, at all costs, a posture of military strength and a determination to employ that strength if the need arises.

Present-day nuclear airpower compresses warfare in time and space to an awesome degree. The grave dangers associated with such weapons have revolutionized our thinking and caused sober reconsideration to be given to the traditional concepts of warfare and of defense. You are familiar with these basic concepts and, in some instances, you were instrumental in developing them.

In the area of continental defense, we are pushing out our early warning lines as far as practicable, thereby increasing our ability to intercept and engage hostile threats as far as possible from vital targets. Such early warning will alert our retaliatory offensive forces and the civil agencies concerned with defense, and will enable our air defense forces to adjust to a maximum state of readiness.

In short, we are doing our utmost to provide an adequate air defense system for our homeland. It will certainly not stop all attacking aircraft short of their targets, but, coupled with our offensive capabilities, it should insure survival. In fact, the very existence of these capabilities—to defend ourselves and to strike back with devastating power—are serving to keep us from being attacked today.—END

How LEWYT helps the fleet read "invisible messages" with...

INFRA-RED!

You can't see the "blinker light" flashing its message out there in the dark—but the Signalman with his Lewyt Infra-red Viewer *can.*

When radio silence is ordered, this amazing "invisible light" serves as a vital communications line.

Lewyt has been producing infra-red equipment for the last 15 years, and is ever broadening its development in this field. However, the thousands of Infra-red Viewers made by Lewyt during World War II are primitive compared with those built by Lewyt today. Rapid strides have been made in the past few years.

In 1952 the Navy awarded Lewyt the first of a number of contracts to:

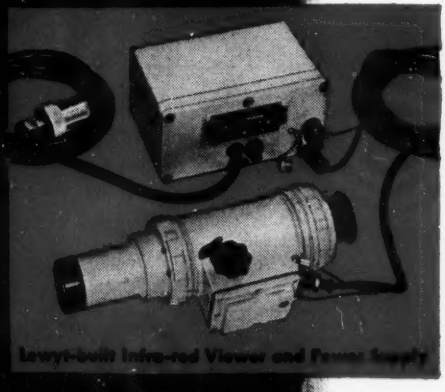
1. **Design and produce an infra-red viewer incorporating an optical system specifically designed for the near infra-red spectrum. Lenses used in earlier viewers had not been corrected or coated for the infra-red wave length**
2. **Engineer a high voltage focusing circuit with completely interchangeable parts to facilitate field servicing.**
3. **Design and develop a 20,000 volt transformer power supply that would operate from the 110 volt AC power source available on shipboard.**

Lewyt engineers met the challenge—*to produce what is probably the most sensitive infra-red viewer thus far made.*

No method existed for production-line inspection of such a viewer. Lewyt engineers had to design special test equipment to insure that all units would meet the highest quality standards for resolution and sensitivity—even under adverse field conditions.

Today the Lewyt-built Infra-red Viewer and Power Supply are in regular production. They will soon be used by the Fleet for detection as well as signalling. In addition, they will be used by the Treasury Department for uncovering forgeries and by the FBI in criminology.

Infra-red is one more field in which Lewyt helps the Armed Forces keep their defenses up. Lewyt employs 1,800 trained workers at all times—busy in peace, ready for emergencies.



Lewyt-built Infra-red Viewer and Power Supply

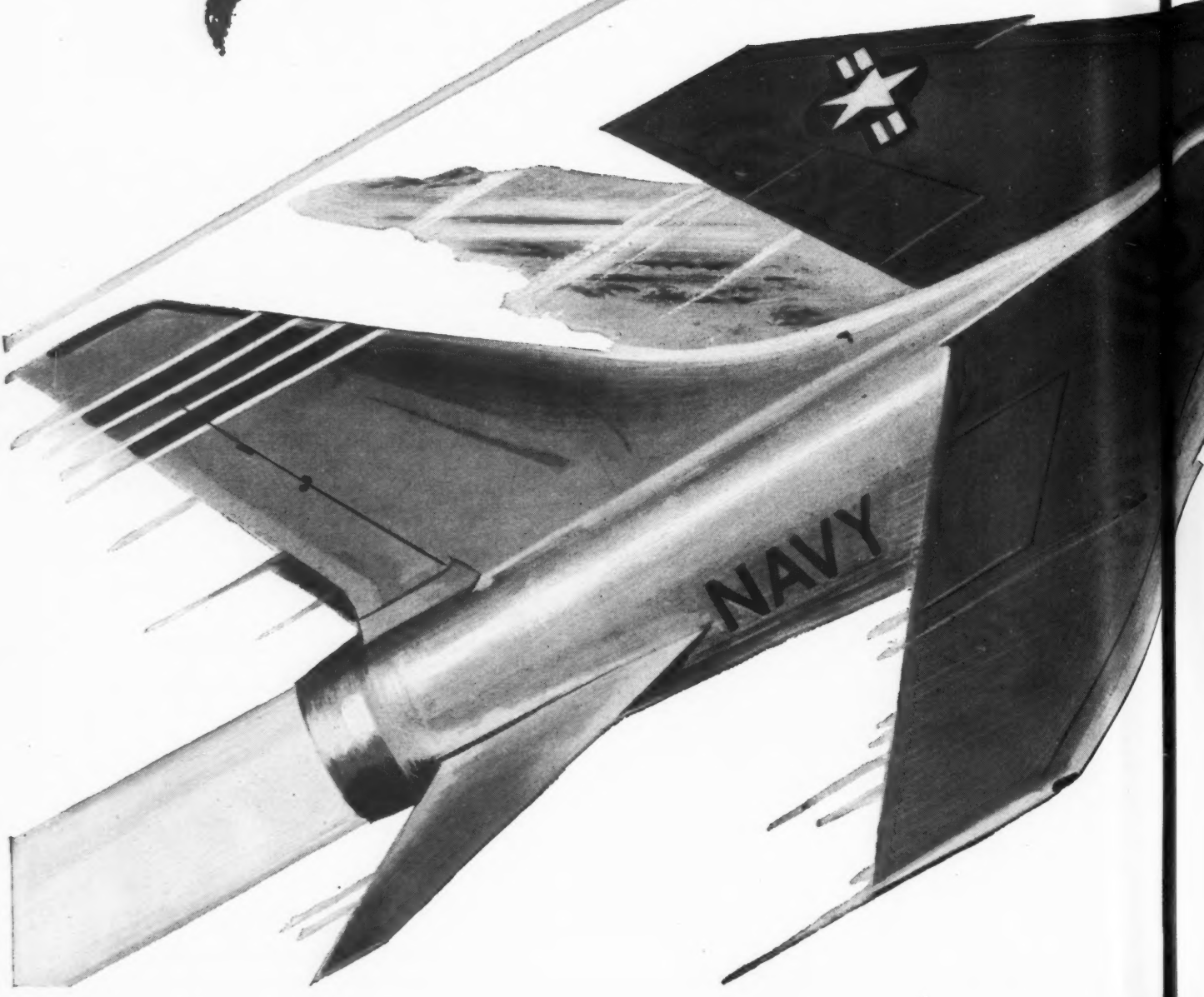
LEWYT

Manufacturer of Electronic and Electro-Mechanical Equipment Since 1888

LEWYT MANUFACTURING CORPORATION
Brooklyn 11, New York

New Vought "Crusader"...

World's Fastest Navy Fighter



From Desert Testing Ground to Your New Air Navy...

From Chance Vought comes a significant advance in carrier-based fighter design — the new, faster-than-sound XF8U-1 *Crusader*.

Combining the requirements of carrier operations with flashing level flight supersonic speed, the U. S. Navy's *Crusader* gives America one of the fastest fighters in the world today.

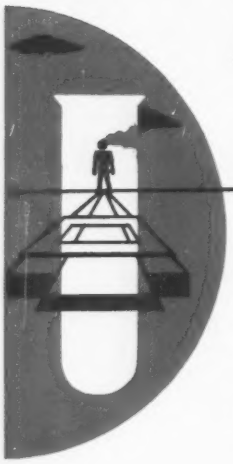
This clean, high-wing aircraft owes its blazing speed and excellent high altitude performance to its simple, uncluttered design and tremendous powerplant—an afterburner equipped Pratt & Whitney J57-P-4 turbo-jet engine.

Latest in a long line of Chance Vought aircraft, the *Crusader*—newest star on the Nation's Defense Team—is an important addition to Your New Air Navy. *Its mission: to help keep free the seas that cover 70% of the world.*

BE A NAVAL FLIER
Visit your nearest Naval Air Station
or write: NAVCAD,
Washington 25, D.C.

CHANCE VOUGHT AIRCRAFT
INCORPORATED · DALLAS, TEXAS

DESIGNER AND BUILDER OF HIGH PERFORMANCE MILITARY AIRCRAFT SINCE 1917



Science and the Military

A warning from the AF's Chief Scientist that we must maintain our weapons superioriy

Dr. H. Guyford Stever
CHIEF SCIENTIST, US AIR FORCE

AFA's John R. Alison left, and Dr. H. Guyford Stever.

Dr. H. Guyford Stever, 39, has been a member of the USAF Scientific Advisory Board since 1946. A native of Corning, N.Y., he was educated at Colgate and the California Institute of Technology. His fields of research include: cosmic rays, radar, guided missiles, and nuclear-powered aircraft.

I WISH to speak informally about a problem confronting our Air Force family business. We are all confident that we now possess a superior Air Force. Yet we are forced to recognize the difficulty of maintaining this position in the future. Russia is now challenging us on the vital elements of the development of future strength such as education and training of scientists and engineers, conduct of basic research, rapid conversion of aeronautical engineering knowledge into military weapon developments, and the rapid production of these weapons. It is the problem of maintaining superiority about which I want to speak today.

During the past decade we have received several jolts about Russian technical capabilities. The rapid adoption and improvement of the turbojet engine for their MIG fighters, the achievement of an atomic bomb capability in four years instead of the much longer time estimated by our scientists, the development and construction of the large long-range turbojet and turboprop bombers and all-weather interceptors which we have recently seen in public shows in Moscow, all serve as convincing evidence that Russia has a great and a growing technology. It is time we examine carefully our own technological strength, particularly with reference to its potential for the future.

We cannot let such examination be superficial, to lead to the wishful thinking that we can easily maintain our superiority.

The scientific community in this country has now found itself devoting a substantial effort to maintaining our military superiority. The community is facing not only the task of maintaining our current technical strength, and improving it in the years that lie immediately ahead, but also the less clearly seen job of assuring technical military superiority for the more distant future. Today the situation differs from that at the beginning of World War II. Then only a small fraction of our science and engineering was devoted to military weapon development. As it became apparent that our country must mobilize, our scientific community converted to war activity along with our industry and our military. Our scientific research of a basic nature, and the education of scientists and engineering students, came almost to a standstill till the war was won.

Today and tomorrow, throughout this period of military uncertainty, a complete mobilization of our science would be undesirable. If all-out war occurred it would be too late to accelerate military weapons development. If war did not occur, and we had mobilized our science, we would be neglecting the vital training of new scientists and engineers who must solve our future technical problems and refill the wells of knowledge on which we base our technology.

Instead of an all-out effort on military development, we must maintain continuously a partial mobilization of science. This forces us to determine the delicate balance of effort exerted by our scientific community, a balance between education, basic research, non-military development on one hand and on the other hand, the participation in development of our military weapons.

How well we are doing in our job of education, research, and development must be measured not only by the great satisfaction of our country in the tremendous technical developments which are being born constantly all around us, but also in the comparison of ourselves to our principle military competitor, Russia. We are now finding data to make this comparison, and it constitutes yet another serious jolt to us all.

A factor which favors Russia in this technical race is the much greater emphasis placed on science in Russia. In the words of Peter Kapitsa, the great Russian physicist, "This is mainly conditioned by the special place allotted to science in our socialist country. Of course it is well known and generally expected in other countries, too, that science plays a great part in the development of culture and technology. It has been allotted the leading part in the development of our technology and economic life. Therefore, the organization of science in our country must be more systematic and conscious of its aims than it is in capitalistic countries where it is rather left to chance and has a spontaneous character. In our country the bonds between science and life must be closer and deeper."

The traditions of Russian science are strong. We, in

this country, have too often allowed ourselves the luxury of wishful thinking about Russian science such as that which resulted from the Lysenko episode. You recall that Lysenko was the geneticist who went contrary to the best accepted scientific theories concerning the relative influence of environment and heredity. He was politically strong in Russsia, and he used this political strength to achieve supremacy, at least for a time, over many of his colleagues who were recognized as strong scientifically throughout the world. This clear-cut evidence of what we called "scientific decadence" has been used all too often to illustrate the fundamental weakness of Russian science. It is a case which cannot be taken as typical. In many scientific fields, Russians are recognized amongst world leaders. They are excellent in mathematical analysis, physics, chemistry, aerodynamics, non-linear mechanics, metallurgy, and several other fields of great importance in aeronautics.

But the grimmest picture *vis-à-vis* Russia is in the field of scientific and engineering education. Most experts who have examined our situation compared to that which exists in Russia conclude that we have already lost the engineering manpower battle. Our peak output of engineering graduates came around 1950 when it reached 50,000, swelled, of course, by the large number of GI students who had returned to school and who recognized the importance of engineering and science. Since 1950, it has slipped to roughly 20,000 graduates per year. Russia's corresponding statistics in those two years are 28,000 in 1950 and 54,000 this year. Numberwise their production rate has already more than doubled ours, and in absolute numbers they have almost caught up with us.

We, in this country, often have been plied with these statistics of the number of engineers and scientists which are going through Russian schools, and again we have often protected ourselves by the belief that the quality of our scientists and engineers is vastly superior to that in Russia. In this matter of quality it is more difficult to get data, but all that I have seen convinces me that, while there are minor differences in the educational material which they cover, the over-all quality of a graduate of their system and a graduate of our system appears to be about equal. The current differences in the educational system here and there are almost all to the advantage of the scientific and engineering training on their side. As an example, their undergraduate science training runs about a year and a half longer than our American equivalent, and it calls for practical work in industry. As another example, their primary and secondary schools give a much better background in mathematics and the basic physical sciences than do our own.

With respect to the efficient employment of a large number of engineers and scientists, Russia also has some other inherent advantages. Their society is such that graduates can be directed into certain fields. At the present time they are drafting a large number of their university science and engineering graduates to go into university as well as primary and secondary school teaching. This assures them of a continuing and growing supply of engineers and scientists. The ones who don't go into teaching can be directed into those fields of technology which most suit the aims of the state society. Engineers and scientists are usually exempt from military service. They are often required to assist in teaching specialized courses in a nearby technical school in addition to their other duties.

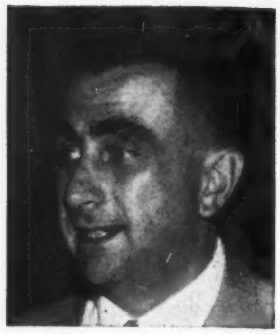
It seems to me, in the light of the evidence that we are now getting, that we cannot win the race for future technical superiority if we do not do something radically different in this country. I want to repeat that point. We cannot win the race for technical air superiority unless something radically different is done. It seems to me that we now have no choice but to follow two courses of action, one to improve our educational system in order to get increased quantity and quality in science and engineering, the other to more efficiently employ those technically trained people we have. Both of these will take some doing.

First, we might consider what can be done about the education of more engineers and scientists. Some of us have already begun to look around to see at whom we can point our finger—but we find that we end up by pointing it at ourselves. This responsibility rests directly on all of us. It has long been a tradition in our American educational system that control must be vested locally, and we are proud of the results of our educational system in producing a people with a feeling of the responsibility of citizenship, people capable of developing our culture and producing the scientific, engineering, and technological gains which we have made in the world. We do not want to lose that great strength. I am confident that our system can meet the challenge which now faces it but not without considerable action by all of us, at all levels.

The specific suggestions to help are numerous—a substantial contribution of industry to our schools at all levels to improve finances, a thorough selling campaign to the youth of America of the great future which awaits them in engineering and science and of their opportunity to work into positions of business and national leadership, a concerted influencing by our business leaders in local and national school administration. But the vital ingredient is the massive conviction of our entire people of the need for improvement in education. We in aeronautics who feel the need the most must lead this movement.

Until our efforts to increase the supply of scientific and engineering manpower actually begin to pay off, it behooves our country to use our current supply of engineers and scientists more efficiently. Again, a substantial part of the burden falls upon us in aeronautics. Facing those of us in weapons systems or components development are a great variety of entirely new developments such as intercontinental ballistic missiles, nuclear-powered aircraft, and vertical take-off and landing aircraft. These are in addition to the many developments required in more conventional weapon systems. Faced with such a great need for engineering manpower, the temptation is great to use the superior wage scale of industry to attract research scientists and teachers away from their profession. The short-sightedness of this is so evident that I need not go into detail about it.

The selection of the most promising weapons systems for development, and the planning which precedes the developments become paramount items in the presence of limited technical manpower and development budgets. Judicious selections and planning requires considerable analysis. But, here again we can easily be led to an unbalance if paper analysis and paper competition are carried too far. While important to lead our development lines, analysis can easily outrun reality. It is tempting to substitute paper analysis for real development. It can be, and probably has been in the recent past, overdone. Thus overdone, it constitutes a false economy, even though analysis is relatively cheap in terms of dollars. It is a false economy because such over-analysis requires a concentration of the best of our technical talent; when analysis is completed the development of the systems still must be carried out in full. The average engineer's talents go a lot further in hardware development than in analytical studies, for he can use greater help from the supporting elements of technology. To keep the balance between analysis and hardware development and to select our most promising development lines is again a great challenge to us.—END



The 'father of the H-Bomb' gives
AFA delegates a glimpse into the future

The 'Games' o

Like children's gam
always seem directed tow

Dr. Edward Teller
Professor of Nuclear Physics
University of California

s' of Scientists

dren's games, the work of scientists doesn't
irected toward anything really useful

IT IS a great honor for me to be asked to talk here to you. I am very deeply impressed with the fact that you are the people who are doing whatever can be done to keep all of us safe in this nuclear world. Actually, I know less about your business than I should know, and I felt that it might not be appropriate for me to speak at all. When I raised the question, "What should I speak about?", the answer was that I should try and tell you something about the future.

Now, the future, in a political sense, is something which all of us with a little common sense and a little imagination ought to be equally good at predicting. So I cannot talk about that.

If I should try to tell you about future scientific developments, there also I run into some difficulties—at least, as long as we are talking about weapons. You see, I cannot tell about the future of weapons developments for three reasons: One is that it is a secret and I am not supposed to; the other is that if I would make predictions, you might, conceivably, not believe me; and the third one is that I honestly do not know. The work is developing fast and it is so much in the nature of research that we always go toward new surprises, toward the completely unknown. To make a prediction would be foolhardy.

I made one attempt at predicting the future in 1938. I was asked at George Washington University to talk to the general faculty about my research, which was nuclear physics. I thought, I will tell them what might happen if one would try to utilize the energy of the atomic nucleus. At that time it was believed that this could not be done, and I faithfully repeated the arguments by which it was proven in those days that nuclear energy was beyond our reach. And then I said, "There might be a way around all this. It might come in a very short time or it might come never. I am not completely convinced that it cannot be done." This was one year before fission. At least I seemed to have avoided making a ridiculously wrong prediction.

In the same sense, I would now like to try and give you some idea of what research might do to all of us, not in the weapons applications, but in other rather broad fields. And I would like to say that we may come up against some of these developments in the very near future.

One of the things I want to talk about is something everybody knows. That is, interplanetary travel, artificial moons, and stuff of that kind. First of all, I should like to say I am quite convinced that if the younger generation is so very sure that it wants to do something, there is a good chance that somehow or other it will be done. But I would like to say that I believe: when anything like traveling away from the earth will come, it is likely to be done in a way and it is likely to give results which we do not today envisage.

There is one feature of all this which I want to emphasize. When we talk about an artificial moon, I am quite convinced that much of its significance will be in uncovering a number of new scientific facts, like the density of interplanetary matter or the behavior of cosmic rays—things that are, in the most literal sense of the word, of no earthly use to anyone.

As long as we keep a lively interest in things of that kind we are apt to come up against entirely new situations and we shall use them in an unforeseen way.

Now, I should like to talk about an entirely different development. I think I should talk about that for two reasons: One is that it might become in the next decades a practical thing. Furthermore, it is something whose importance is closely connected with the functions of the Air Force. The subject is: How to influence weather.

Due to the activities of the Air Force, we are now, of course, ever so much better informed about the behavior of air currents than we were a decade ago. Because of this better information we are getting closer and closer to the point where it might be possible by high-speed electronic computation methods actually to predict weather. And once these laws are known, not just in principle but in great practical detail, we might find ourselves in a kind of a world where we can even influence weather.

(Continued on page 79)

TODAY'S PERFORMANCE
TOMORROW'S PROMISE

For nearly a generation such great fighter planes as REPUBLIC's Thunderbolt and Thunderjet have written their own imperishable records of combat superiority. Today . . . two rugged, powerful members of this warrior clan, the F-84F Thunderstreak and the RF-84F Thunderflash, are on active service adding to the versatility of our U. S. Air Force. ➤ These swept-wing newcomers emphasize the sleek silhouette which has long been the pride mark of Thundercraft. ➤ The potential of the F-103 and F-105 stresses that never in a long, proud history have the touch of engineering genius and production experience been so skillfully combined. ➤ On drawing boards and in the experimental stage are other almost unbelievable new concepts of advance in aeronautical sciences. Whatever military missions tomorrow's Air Force fighter units are called upon to perform . . . you may depend upon Thundercraft to be in the van.

CEILINGS UNLIMITED for the young ambitious man . . . new vistas of education, travel and security . . . all these are available to career airmen in the USAF. Every day you're in brings you greater satisfaction in the knowledge that yours is a vital and rewarding service to your country . . . to yourself.

REPUBLIC AVIATION

FARMINGDALE, LONG ISLAND, N. Y.

Designers and Builders of the Incomparable **THUNDER-CRAFT**

Now, you know, of course, that energies which get released in any one of these monthly or sometimes weekly hurricanes are completely outside the range of anything that any of us can produce. So how could we influence phenomena of the sky? We can do so because—I shouldn't say we *can* do so, there is a hope, a chance, a possibility, that we *may* do so—because we know even now that a great number of weather phenomena are dependent on trigger effects. Small causes may start a chain of events which keep growing and mount up in the end to something very, very much more substantial than the thing that we have started with. This, together with really detailed knowledge of the behavior of air masses, I think might, conceivably, result in actual weather control, actual climatological control.

I am quite sure that this is the worst place in the world to talk about this topic because any change in climate that could possibly ensue would work out to the advantage of other places than San Francisco. Also, if ever we should learn how to control weather, then something terrible will happen—our last safe topic of conversation will be gone. Whenever man gains a new control over nature, his wisdom of using his new power will be put to a very severe test. Not the same weather will be wanted by everyone and, what is worse, weather might not be controlled just nationally, but the effects of weather control might conceivably spread over the boundaries of continents. So you see, every new possibility that science opens up, even though it might look as peaceful and as commonplace as the weather, might have dangers associated with it which might call for a great and difficult kind of wisdom.

I should like to finish by talking to you about a third variety of scientific problem. Just the opposite of weather control, it is what I would like to call the useless kind of research, the kind of research in which people are engaged who are scientists' scientists. These are the people who look for an understanding for the sake of understanding and not for the production of any practical effect, like making weapons, or like influencing weather. Actually, when we first got interested in the atomic nucleus, as I have already mentioned to you, it seemed to us very sure that atomic nuclei were extremely well protected by the strong electric repulsion around them and that by no human means would we be able to release the energy which we knew from the very beginning must be inside the nucleus. Yet after having played with this sort of thing for some time, it turned out we were led to entirely unforeseen possibilities, and possibilities which are of the greatest practical importance to all of us at present. We are now throughout the whole nation and throughout the whole world, and also very particularly at the Radiation Laboratory in Berkeley, engaged in analyzing, not merely the atomic nucleus, but particles out of which atomic nuclei are made and forces which hold the nucleus together. And if you ask me, "Why?", I will say, "Curiosity, idle curiosity."

The scientists have agreed among themselves and agreed unanimously and thoroughly that this is an interesting problem, that our knowledge is incomplete, that we have to go on, that we have to see where this leads us, not for any practical purpose, but simply for the reason that we would just like to know more, that we are just curious.

The tools of such research are complicated; they are complicated even as far as hardware is concerned. They may seem to you even more complicated when you come to the ideas, when you descend into the atomic world and nuclear world which is as much an Alice-in-Wonderland world as you can ever make it; a world which looks surprisingly like a dream. Yet these things have produced very solid and very spectacular results, as you all know.

Now, I think that here is a very great danger, a danger entirely different from the danger of weapons, and entirely different from the danger of gaining too much power over nature. This danger is the lack of understanding between one group of our society and another group. Most of us are working on solid, concrete jobs which are directed toward very definite, practical aims. We can explain to our fellow beings what we are trying to do and why we are trying to do it, whether it be reasonable or whether, in the opinions of some, it be unreasonable.

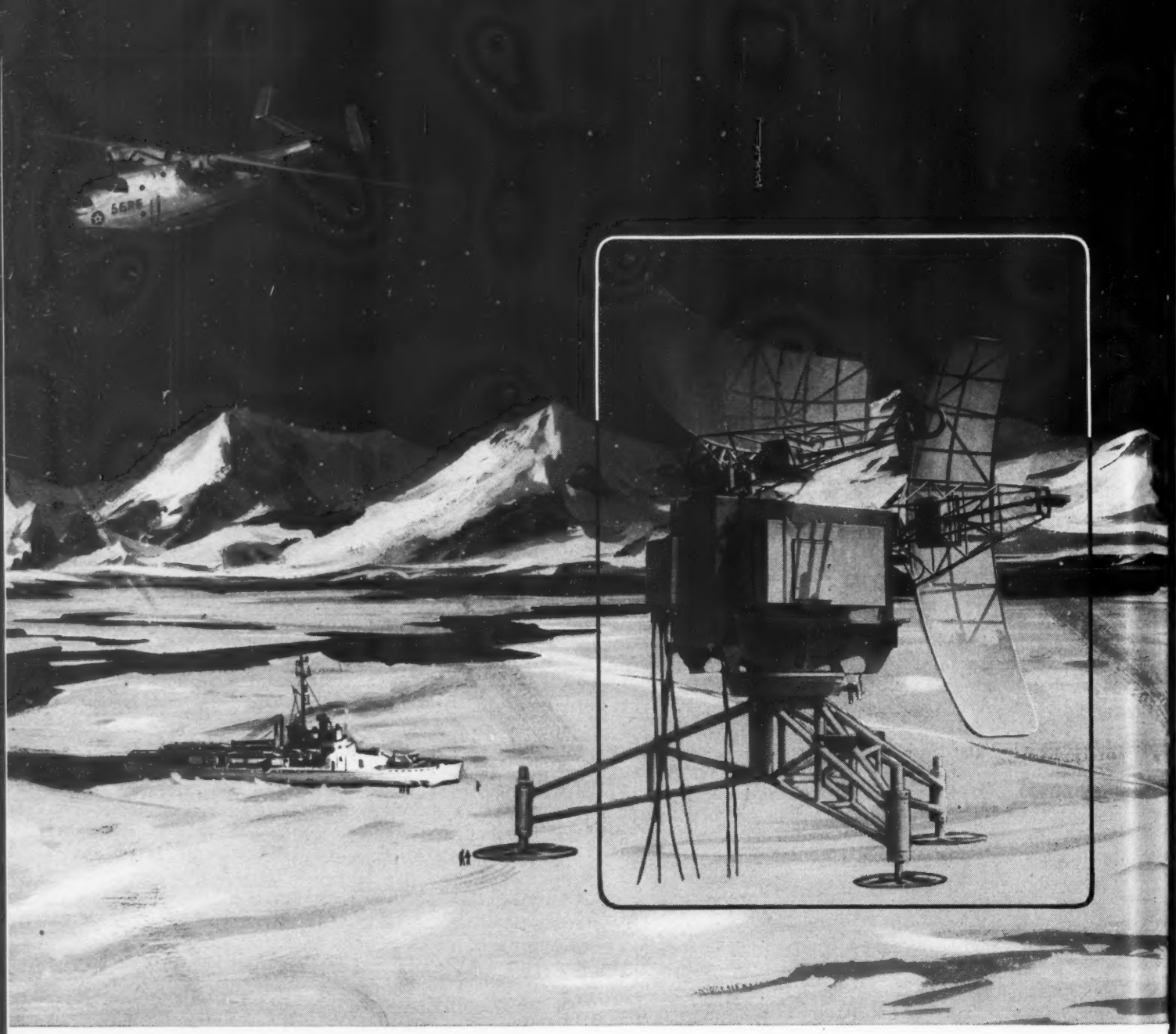
And there is another group, the group of the scientists who, instead of working toward a very definite aim, look for knowledge in a world which is either smaller and smaller like the atomic and nuclear and subnuclear, or more and more remote as we are trying to explore the ultimate limits of the universe and how it all came about. Why are we continuing to pursue these things in as complicated a way as we apparently do? It gives me a great deal of trouble even to try to explain to you the ideas with which we are working. The result is that this scientific group will to a very great extent not be appreciated by the practical person who makes up necessarily and sanely 99.9 percent, at least, of any community. And it is tremendously dangerous for those dreamers who are trying to look for new things to be left isolated, to be left unappreciated, because if they are so left, then they will be turned away more and more from the practical applications of what they are doing, and democratic society falls apart into groups which simply do not understand each other.

What to do about it? I do not know. One can try for a few more seconds by attempting to give you a picture, to give you a point of view on the scientist which is, perhaps, not quite a conventional one and which may not be completely correct, but which has an element of truth in it. The work of a scientist is in very many ways like the game of a child. It does not seem to be directed toward anything that really need be done or toward anything really useful. When I first became interested in thermonuclear reactions, it was for the purpose of finding out how and why the sun produces the kind of energy that it produces all the time. What was the use? One could never influence the sun anyway.

Nevertheless, these games in the end may enable us to do certain things in the real world. You may be tempted to look on the scientists like children. I think you might be very well justified in thinking about them this way. But I wish that you would at the same time remember that it is the children who make up the world of tomorrow.—END

DR. EDWARD TELLER

Dr. Edward Teller has been a professor of nuclear physics at the University of California since 1953. Born in Budapest, Hungary, in 1908, he became a naturalized US citizen in 1941. An authority on theoretical and nuclear physics, he's best known for his work in the development of the H-bomb. He received his Ph.D. in Leipzig in 1930 and took a position as professor of physics at George Washington University in 1935. In 1941 he was at Columbia University and from 1942-46 he was with the Manhattan District at the University of Chicago and the Los Alamos Scientific Laboratory. He was at Los Alamos again from 1949-52. He, his wife, and their two children live in Berkeley, Calif.



SPAR JOINS THE NAVY

U. S. Navy's Antarctic expedition to use SPAR—for safe, precise landings under rugged arctic conditions

The Navy, Air Force, Marines, civilian airport authorities and even foreign governments, realized months ago that SPAR — the ingenious, *portable* GCA landing system — could outperform heavy, cumbersome approach radar equipment costing five times as much. But could this exciting new GCA take it when the going got really rough?

The Air Force found out. Up at Ladd Field, Alaska, when the mercury started flirting with 40 below, they drenched SPAR with a fire hose, cloaking it in ice until it was barely recognizable. But the moment they energized SPAR, it purred into operation as easily as though it were in Sunny Florida. No wonder the Navy has enlisted *two* SPARS to accompany the next antarctic expedition. Easy to carry, easy to set up, easy to operate, SPAR can be trusted to bring 'em in safely and quickly under the worst conditions imaginable.

could* SPAR *be the answer to your needs?

L/E®

LABORATORY FOR ELECTRONICS, INC.

75 PITTS ST., BOSTON, MASS.

AIRPOWER IN THE NEWS — By Lee Klein

Secretary of the Army, Wilber M. Brucker, left, congratulates Donald A. Quarles after he was named Secretary of the AF, succeeding Harold E. Talbott. Charles S. Thomas, Secretary of the Navy, and Secretary of Defense Charles E. Wilson look pleased by it all.

■ When word was received during the AFA Convention that **Donald A. Quarles had been named new AF Secretary,** most of the delegates recalled that they had heard him speak at the Omaha Convention just the year before. (See "Security in the Hydrogen Age," October '54 AIR FORCE.) The appointment, coming at a time when the air if full of talk about satellites, space flight, atomic airplanes, and intercontinental ballistic missiles, was **generally hailed as a good one.** Quarles comes to his new job with **two years of experience as Assistant Secretary of Defense for Research and Development.** Basically a scientist, he also has wide business and administrative experience. A sixty-one-year-old native of Van Buren, Ark., Quarles received his BA degree from Yale and during World War I served as a Field Artillery officer with the famous Rainbow Division. Since then, he has spent most of his career with **Western Electric Co.** and its affiliates. He has been a vice president of both Western Electric and the **Bell Telephone Laboratories.** When called to the Pentagon, he was president of the **Sandia Corp.,** a Western Electric subsidiary that operates AEC's weapons research laboratory in Albuquerque, N. Mex. Quarles has a home in Englewood, N. J., where he was once elected mayor on a Republican ticket.

■ The **National Aircraft Show** at Philadelphia's International Airport **attracted almost 300,000 visitors** over the three-day Labor Day weekend. The show featured flyovers by some of the AF's newest planes—the **McDonnell F-101 Voodoo, Convair's F-102, Lockheed's C-130 Hercules** turboprop transport, and the **Boeing B-52.** One of the featured events was a near-sonic flyover on Labor Day by **Thompson Trophy winner Col. Horace A. Hanes,** simulating his world speed record flight which was set August 20 in a **North American F-100C.** Colonel Hanes set the record at Palmdale, Calif., with **a speed of 822.135,** almost seventy miles an hour faster than the 755-mph record set by **Lt. Col. Frank K. Everest** in 1953.

Other winners at the show:

• **Bendix Trophy—Col. Carlos M. Talbott,** USAF, flew from George AFB, Calif., to Philadelphia in three hours, forty-eight minutes, and four seconds. **He averaged 610.76 mph** for the 2,325-mile dash.

• **General Electric Trophy—320th Bomb Wing, SAC. Maj. Leonard J. Stevens** commanded the winning B-47 stratojet which flew from March AFB, Calif., to Philadelphia in three hours, fifty-seven minutes and 59.2 seconds, averaging **589.294** mph for the 2,337 miles.

Richard T. Whitcomb inspects a model incorporating his new "area rule" shape. Note contour at the wing roots.

• **Allison Trophy**—Awarded for the fastest engine change, to **a crew from the Flying Training Air Force, Webb AFB, Tex.** The crew, headed by **S/Sgt. Richard D. Wright,** changed a Lockheed T-33 engine in **ten minutes, 32.2 seconds,** defeating five other teams.

■ **A new concept in aircraft design,** which increases performance in the transonic speed range, was announced last month by the **National Advisory Committee for Aeronautics.** The new principle, called the **"area rule,"** was actually discovered and developed a few years ago, but its significance was such that it remained highly classified until recently. **Richard T. Whitcomb,** 34, discovered the principle through his experiments at NACA's transonic wind tunnel at Langley, Va. He found that a plane's **speed could be boosted by pinching in the fuselage** at the point where the wings are attached. The shape, nicknamed "Coke-bottle" or "Marilyn Monroe," is used on the **AF Convair F-102A** and the **Navy Grumman F11F-1.**

■ **Jimmy Stewart,** stage and screen actor, and **Beirne Lay, Jr.,** motion picture writer, were awarded the **AF's highest civilian awards** at the **Air Force Association Convention** in San Francisco. The awards were made by **Roger Lewis,** then Assistant Secretary of the AF for Materiel, at the annual Symposium Luncheon in the Fairmont Hotel.

The Exceptional Civilian Service Award went to Lay for

(Continued on following page)

The Exceptional Civilian Service Award was presented to Jimmy Stewart by Roger Lewis in a ceremony at the recent Convention in San Francisco.

Beirne Lay, left, was also given the AF's' highest civilian award for exceptional service to the USAF. Awards were made at the Symposium Luncheon.

his "exceptional service to the USAF in war and peace and through the media of books and screenplays." Stewart was honored with an identical award "in recognition of distinguished patriotic exceptional service to the USAF as an officer combat pilot and entertainer." Both Lay and Stewart were **guiding forces behind Paramount's "Strategic Air Command."** Stewart's award also cited his portrayal of the leading role in the movie.

■ **The Cheney aviation award for 1954** went to **Lt. Col. John P. Stapp** for "valor and self-sacrifice" in his rocket sled experiments (See "Desert Sleigh Ride," May '53 AIR FORCE). Last winter, Stapp rode a rocket-propelled sled to a **world's ground speed record**—632 mph. After receiving the award, the chief of the **AFA's Aeromedical Field Laboratory** at Holloman AFB, N. Mex., disclosed that he is preparing for new experiments **at speeds of 1,000 mph and faster.** Information gathered in the tests is used to develop safe bail-out and crash procedures for pilots of supersonic aircraft. The award, presented by **AF Chief of Staff Gen. Nathan F. Twining,** is given annually for an outstanding contribution to aviation in the memory of **Lt. William H. Cheney,** a pioneer airman.

Colonel Stapp also holds the **Air Force Association Science Trophy** for his "research into the problems of high-speed flight, conducted at grave personal risk." The award was presented at last year's Omaha Convention.

■ AIRPOWER NOTES . . . Navy plans to **land a plane at the South Pole** next winter. . . . Preparedness subcomittee of the Senate Armed Services Committee is conducting **a broad investigation of US defenses**—especially airpower. . . . **Bernard M. Baruch** opposes any cuts in our armed forces. . . . Administration drive **to get the government out of business** being hampered by defense appropriations riders **requiring Congressional approval** of Pentagon plans to drop military business activities. . . . West Germans, still remembering with horror the Allied bombings of World War II, were **reported to have been more shook up than reassured** by the recent NATO air exercises. . . . Navy gets into the act, says its torture school is tough, too.

■ STAFF CHANGES . . . **Brig. Gen. Edward N. Backus** has been released from duty as Deputy Chief of Staff, Operations at Hq. Fifth AF, FEAF, APO 710, San Francisco, and assigned duty as Commander of the 39th Air Division, FEAF, APO 919, San Francisco. . . . Formerly Chief of the Dental Division of ATC at Scott AFB, Ill., **Brig. Gen. James S. Cathroe** is now Deputy Assistant for Dental Service, Office of the Surgeon General, Hq. USAF, Washington, D. C. . . . In September, **Brig. Gen. William H. Wise** became Commander of the 37th Air Division, ADC, Truax Field, Wis. He had been Commander of the 6604th Air Base Wing, NEAC, APO 862, New York. . . . **Maj. Gen. Byron E. Gates** has been ordered to extended active duty at Hq. ATC, Scott AFB, Ill. . . . In September, **Brig. Gen. Donald R. Hutchinson** was assigned duty as the Senior AF Member, Military Studies and Evaluation Division, Weapons Systems Evaluation Group in the Office of the Assistant Secretary of Defense for Research and Development. He had been Commander of the Iceland Defense Force, MATS, APO 81, New York. **Brig. Gen. John W. White** replaces General Hutchinson. General White had been a member of the Policy, Training and Organization Section, Joint Strategic Plans Group, Joint Chief's of Staff. . . . In November, **Maj. Gen. Harlan C. Parks** will assume duties as Assistant Chief of Staff, J-1, Far East Command, APO 500, San Francisco. He leaves his post as Senior Member, United Nations Military Armistice Commission, APO 72, San Francisco. . . . **Brig. Gen. James L. Riley,** formerly a member of the Secretary of the Air Force Personnel Council, is now Deputy Director of the Council. . . . **Brig. Gen. Donald D. Flickinger** is new commander of the Air Force Office of Scientific Research, ARDC, Baltimore, Md. He had been Director of Research, ARDC. . . . **Brig. Gen. James L. Jackson** has been released from duty as Commander, Southern Air Materiel Area, USAFE, APO 30, New York, and assigned to Hq. AMC at Wright-Patterson AFB, Ohio. **Brig. Gen. Charles A. Heim** replaced General Jackson. General Heim had been Assistant Deputy Chief of Staff, Materiel, USAFE, APO 633, New York.—END

Col. Horace A. Hanes holds the new world speed record of 822.135 mph, set in a North American F-100C Super Sabre.

controlled performance

by Reeves Instrument Corporation

DAY OR NIGHT — FAIR WEATHER OR FOUL . . . whether the target is an airfield . . . railroad bridge . . . factory area . . . ammunition dump . . . shipyard or troop concentration, Reeves ground guidance systems provide the Air Force with an offensive threat capable of hitting the bullseye every time — sight unseen. Tested during the Korean war, the control equipment illustrated below is the tactical unit developed and produced by Reeves on which the U.S. Air Force depends . . . both at home and abroad. This completely automatic guidance control is capable of directing any type of missile or airplane, either with or without pilot.

Reeves has a thoroughly trained engineering group available at all times to help you solve any guidance problem. In addition to Command Guidance Systems, Reeves has a wide experience with all three Services in the development of Radar, Gun Fire Control, Servo Mechanisms, and Computing Systems of all kinds. Their extensive facilities are available for all types of prime or sub-contract operations

Reeves Instrument Corporation

Reeves Command Guidance Systems

REEVES INSTRUMENT CORPORATION

A Subsidiary of Dynamics Corporation of America

215 East 91st St., New York 28, N.Y.

Highlights of the AMC briefing at AFA's Convention

What's Ahead in Logistics

Gen. Edwin W. Rawlings
COMMANDER, AIR MATERIEL COMMAND

THE mission of Air Materiel Command is to support the combat and operational units of the Air Force. This is our only reason for existence. Our job embraces the determination of requirements—how much of what must be procured to maintain our operational units at peak efficiency; actual procurement of the materiel, including such support and assistance to industry as may be necessary to insure its productive capacity; supply of Air Force materiel to some 1,800 Air Force and other installations throughout the world; and maintenance of Air Force equipment to keep it in optimum working order. . . .

At the end of world War II supplies moved to our commanders in Germany at a speed of three and one-half miles per hour. In any future war they must move at something very close to the supersonic speeds of our air striking power. Our urgent objective now is to close that gap between the air weapon and its lifeline.

We have made definite progress toward this end, particularly with respect to priority support essential to the war plan and to the handling of high-value and critical materiel. We are sharply aware, however, of the tremendous amount of improvement which must still be effected to create an integrated logistical system. . . .

I should like to expand somewhat upon a general trend, a kind of multiple approach to stepping up the logistical tempo. . . .

This is the use of electronics as a tool of logistical management. I am convinced that the science of electronics will eventually do as much for our logistical capabilities as it has already done for the operational capabilities of our weapon systems. . . .

As many of you know from experience, the great drag-chute of air logistics is paperwork, the mass of bookkeeping, reports, records, data processing essential to creating and controlling multi-billion dollar world-wide inventories involving some million and a quarter separately catalogued items. At Air Materiel Command Headquarters we process about 350 regularly recurring reports covering everything from personnel, aircraft, and components, to basic industrial materials, financial accounting, and industrial mobilization problems. Actual transport materiel accounts for only about twenty percent of routine pipeline time. The other eighty percent is consumed by the processing of information and materials handling.

It is in this eighty percent area that electronics can galvanize our operations. Electronic data processing systems offer us three great advantages in the streamlining of our logistics. Probably their greatest asset is the incredible speed with which they can digest and reduce to significant totals the great masses of data generated in air logistics. UNIVAC, for instance, one of the first of our installations, which we are using at AMC Headquarters, can perform 1,900 additions or subtractions, 465 multiplications, 257 divisions, or 2,740 comparisons in one second—about the time it takes to say the word "addition." ELECOM, a general-purpose computor now being installed at our Mallory Air Force Depot in Memphis, can accomplish the whole paper-work cycle of filling a requisition from depot stocks in about the same length of time. Quoted speed advantages of the computers over manual processing vary from ten to one, to 600 to one, depending upon the nature of the operation.

Secondly, these systems are accurate. Repeated manual handling generates errors in data. In a test check, for instance, we found that of 1,000 errors in one report series, only three percent stemmed from the original source of the data. Ninety-seven percent were the result of multiple manual processing. The electronic systems can't correct errors which are put into them, but they are practically proof against making any more of their own. It has been estimated that the incidence of error in systems now being installed for inventory control is about once in five billion operations.

Thirdly, they have the ability to store enormous amounts of information and make it available on demand at lightning speed. In addition to electronic "memories" which can actively "store" quantities of data, inactive records can be filed on magnetic tapes which require about one-sixtieth of the storage space needed for punch cards containing the same information. . . .

We are also utilizing electronics in our nation-wide—and by next year world-wide—communications. By means of "transceivers," desk-sized transmitting and receiving devices, linked by telephone lines or radio, electronic impulses from coded card impressions can be transmitted thousands of miles to punch identical cards at the receiving end. We estimate that, combined with airlift within the Zone of Interior, the system, when completely installed, can cut pipeline time for critical or high value materiel to a single day. Overseas pipelines will show a comparable reduction.

These are still the merest beginnings of the full exploitation of electronics in logistical management. A great deal remains ahead of us in learning how to program this equipment—a highly skilled job in itself; in seeing broad new applications for it as they take shape; in tying the whole together into an integrated, completely mechanized system.

Naturally, this cannot be accomplished in a day. The great majority of our present applications are experimental. They will operate on a test basis, paralleling established systems, until we have a solid measure of equipment and limitations and have trained our people to fully reliable capabilities performance with the new machines. . . .

There is by now, however, no doubt among those of us who have watched this trend develop that it is the shape of the future in air logistics. Coupled with airlift it gives us the first realistic prospect we have had for logistics geared to the capabilities of our jet-age air weapons. I believe it will have increasing interest and significance to those of you in the Air Force Association who, in many capacities, work so closely with the Air Force. Your experience and vision can help us to use this new force to the fullest advantage, to mould it successfully into a tool for the *instant* support of *ready-to-go* airpower.—END

How the Air Force Goes Shopping

Maj. Gen. David H. Baker DIRECTOR OF PROCUREMENT AND PPRODUCTION, AMC

MOST of us have spent many years of our lives in formal schooling, both in and out of the military service. Most of this time has been spent in studying and analyzing those things that have taken place. I am sure we have often been irritated at reviewing history for it always seems that the important thing to concentrate on is what will happen rather than what has happened.

Nevertheless, from these extensive analyses of what has happened, I am sure all of us have discovered that situations and conditions are changing daily. We have also learned that failure to recognize these changing situations invariably results in disaster. If one studies about nations and nationalities, he soon learns that the nation or country that fails to recognize a change in international or even national environment will gradually deteriorate and ultimately fail. If one studies about business, he can readily find thousands of enterprises and even industries that have failed because management did not recognize change. If one studies military history, he soon discovers that failures to recognize a change in weapons or military capabilities invariably results in defeat. All this can be summed up in a phrase which I'm sure you have all heard—There is nothing as constant as change.

We who are part of the aircraft industry have been associated with the most rapidly changing situations that any business enterprise or industry has ever faced. . . .

The historic feast-and-famine characteristics of this industry are very well known to all of you here today. The rapid up-and-down changes in our production programs have also been terrific but, unlike the improvements to our product, we hope this characteristic of feast and famine is not continuing. So we in the aircraft industry are definitely associated with that segment of our national economy that exemplifies more than any other the fact that "there is nothing as constant as change."

So when we look at the future, it behooves us to look carefully at those changes which have taken place and which are taking place today. This business of looking into the future is perhaps the most difficult task an executive has to do. Not only is it the most difficult but it is the one that normally takes second place to the day-to-day "fires" that give such immediate satisfaction to any leader. However, we all know that this task of looking ahead to the future is one that pays off in ultimate success of an enterprise. So this job of recognizing change, and looking forward, is one that ultimately spells success or failure and therefore must be considered as a vital responsibility of every top executive. . . .

First, and most important, we should take a look at the Air Force materiel dollar. Where has it been and where does it appear to be going? Our deliveries in 1953 were $5.6 billion; in 1954 were $6.2 billion; and in 1955 they probably will be $6.6 billion. Our estimate indicates slightly higher deliveries in 1957, 1958, and 1959. While the world situation may have improved somewhat, very recently, I'm sure that there is no one here today who will say that we should let our guard down, for the mere existence of the hydrogen bomb and the long-range bomber means that only through power, and particularly airpower, can we preserve peace.

On January 5, 1955, in a letter to Defense Secretary Wilson, President Eisenhower stated, "Lack of reasonable stability is the most wasteful and expensive practice in military activity." In the same letter he further stated: "Development of sound, long-range security requires that we design our force so as to assure a steadily increasing efficiency, in step with scientific advances, but characterized by a stability that is not materially disturbed by every propaganda effort of unfriendly nations." Mr. Vinson, Chairman of the House Armed Services Committee, has very recently expressed this same feeling when he stated, "There can be no reduction of our Regular forces beyond present long-range levels, until a new Reserve program produces a trained stand-by force of 2,900,000 men—perhaps in 1962."

Will our dollar deliveries increase in the next five years? There will be a very strong tendency for this to occur. In pricing out our 1957 program which is a continuation of some of our new accelerated programs, we find that the increasing complexity of our weapons is increasing our costs to the point where our current estimates for 1957 are above the funds we feel may be available for obligation. We do, however, forecast Air Force materiel deliveries of about $6 to $7 billion per year for the next several years. This in effect says that from an overall view the Air Force production program is stabilized and will remain stabilized for several years.

However, beneath this stabilized situation other changes are taking place. First, the number of aircraft delivered is going down from its peak of last year. Therefore, individual companies within the industry are feeling the effects of the decline. For the Air Force to attempt to maintain each company in a stabilized situation is not practicable with increased competition in production and product development.

Another change of even greater significance is the change in distribution of our Air Force materiel dollar among various segments of the aircraft industry. It is obvious that in the airframe area our dollar deliveries will decrease in the next few years. However, in guided missiles production, which as you all know, is primarily carried out by the present airframe industry, dollar deliveries will rise as dollar deliveries of airframes drop. It is also obvious from present trends that our dollar deliveries of electronics will increase substantially in the next few years. Engines, armament, and other miscellaneous deliveries should remain fairly constant. . . .

We are gradually, yet positively, moving toward greater competition in all our procurement. In other than major weapons systems our percentage of competitive procurement has increased in the past two years and will increase more in the near future. I am not speaking of advertised procurement which, as you know, is very difficult in our business, but I am referring to thorough, impartial evaluations of our contractors' products and their proposals. Moving more toward fixed price contracts is enabling us to isolate price differentials more realistically.

(Continued on page 91)

An AIR FORCE Magazine Photochart
(Corrected as of September 6, 1955)

The AIR MATERIEL COMMAND

Wright-Patterson
Air Force Base, Ohio
Telephone
Kenmore 7111

Commander
Gen. Edwin W. Rawlings
Ext. 6-0333

Vice Commander
Maj. Gen.
William F. McKee
Ext. 5-6103

Deputy Vice Commander
Brig. Gen.
Frederic H. Miller Jr.
Ext. 5-6226

Inspector General
Brig. Gen.
Lewis L. Mundell
Ext. 6-3331

Office of Information Services
Col.
Julian B. Cross
Ext. 6-3306

Chaplain
Chaplain (Col.)
Leonard C. Habetz
Ext. 5-9102

Surgeon
Brig. Gen.
Edward J. Tracy
Ext. 5-1211

Staff Judge Advocate
Brig. Gen.
Moody R. Tidwell Jr.
Ext. 2-1133

Quality Control
Col. Clair A. Peterson
Ext. 5-1137

Asst. for Special Weapons
Col. Harold C. Porter
Ext. 5-5311

Executive and Asst. for Management
Col. Elmer G. Prohaska
Ext. 7-3119

Legislative Liaison Division
Lt Col John R. Medberry
Ext. 7-2230

Adjutant
Lt Col. Harvey H. Jones
Ext. 5-4122

Directorate of Procurement and Production
Maj. Gen.
David H. Baker
Ext. 2-7119

Deputy
Brig. Gen.
Harley S. Jones
Ext. 2-7119

Deputy Director Procurement
Brig. Gen.
William T. Thurman

Deputy Director Production
Brig. Gen.
Clyde R. Mitchell

Directorate of Supply & Services
Maj. Gen.
Frederick J. Dau
Ext. 5-0224

Deputy
Col.
George E. Keeler Jr
Ext. 5-0224

Administration Office
Maj. Howard D. Egbert
Ext. 5-1201

Plans & Operations Office
(now unassigned)
Ext. 5-2224

Directorate of Maintenance Engineering
Maj. Gen.
Merrill D. Burnside
Ext. 5-6135

Deputy
Col. Clare W. Bunch
Ext. 5-6135

Administration Office
Mrs. I. L. Hutchison
Ext. 5-8117

Maintenance Engineering Plans & Management Division
Col.
Victor L. Anderson
Ext. 5-5109

Directorate of Transportation and Services
Brig. Gen.
Raymond L. Winn
Ext. 7-1134

Deputy
Col.
Marion G. Ferguson Jr.
Ext. 7-1134

Plans and Programs Office
Col.
James E. Hickey
Ext. 7-3130

Air Force Services Division
Col.
Nathan T. Folwell
Ext. 7-2214

Directorate of Personnel & Support Operations
Brig. Gen.
Alvord V. P. Anderson
Ext. 5-9112

Deputy
Col
Gilmore V. Minnis
Ext. 5-9112

Ground Safety Office
Col.
Leonard F. Carter
Ext. 5-0118

Civilian Personnel Division
Col.
Jack W. Bowman
Ext. 5-7232

Comptroller
Col. Charles A. Piddock
(Acting)
Ext. 5-0111

Reports Control Office
Maj. Orlff V. Sells
Ext. 5-2225

Logistical Systems Research & Planning Office
Col.
George C. McDowell
Ext. 7-0201

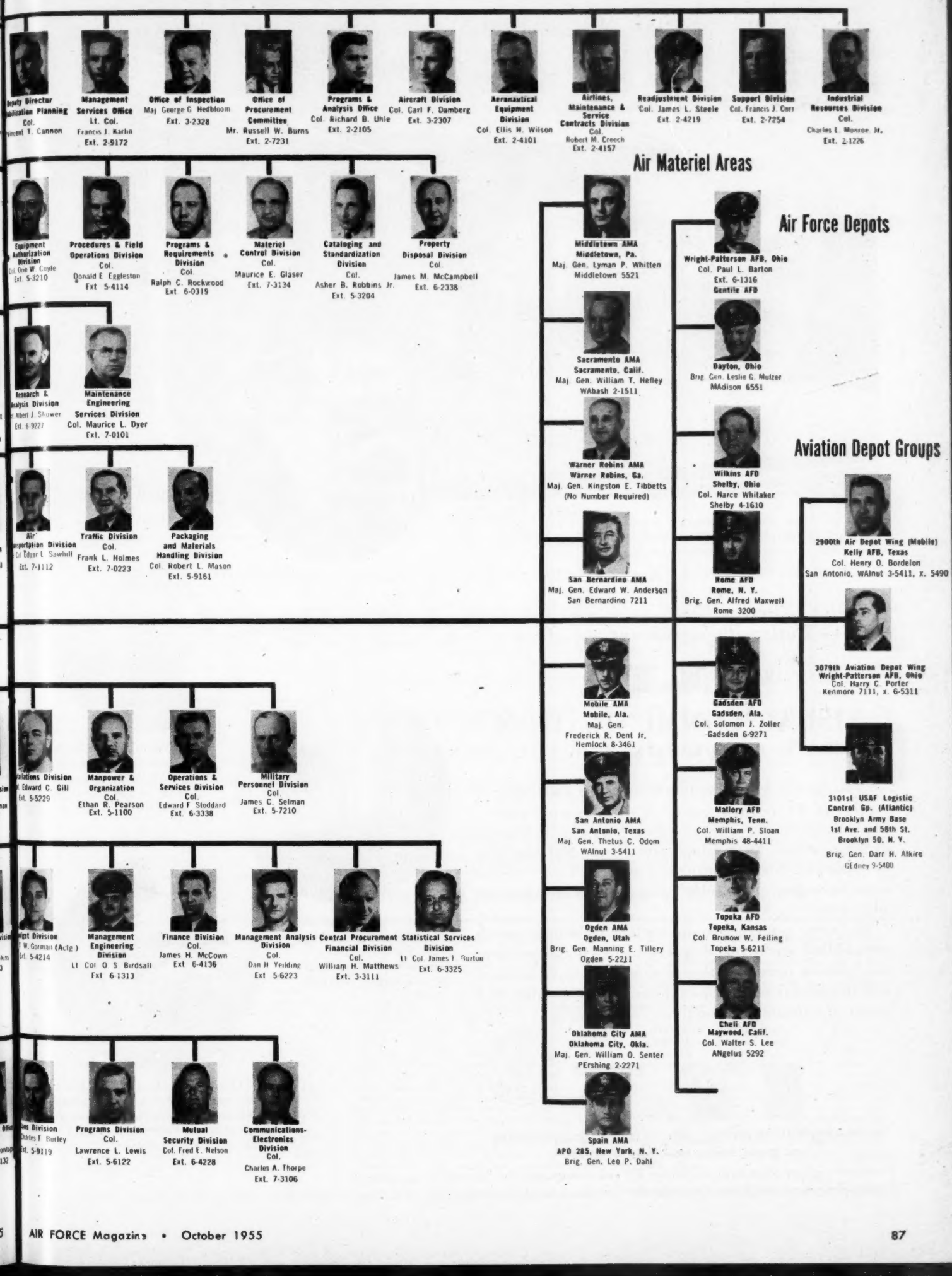
Accounting Division
Col.
Edward J. Hopkins
Ext. 6-9103

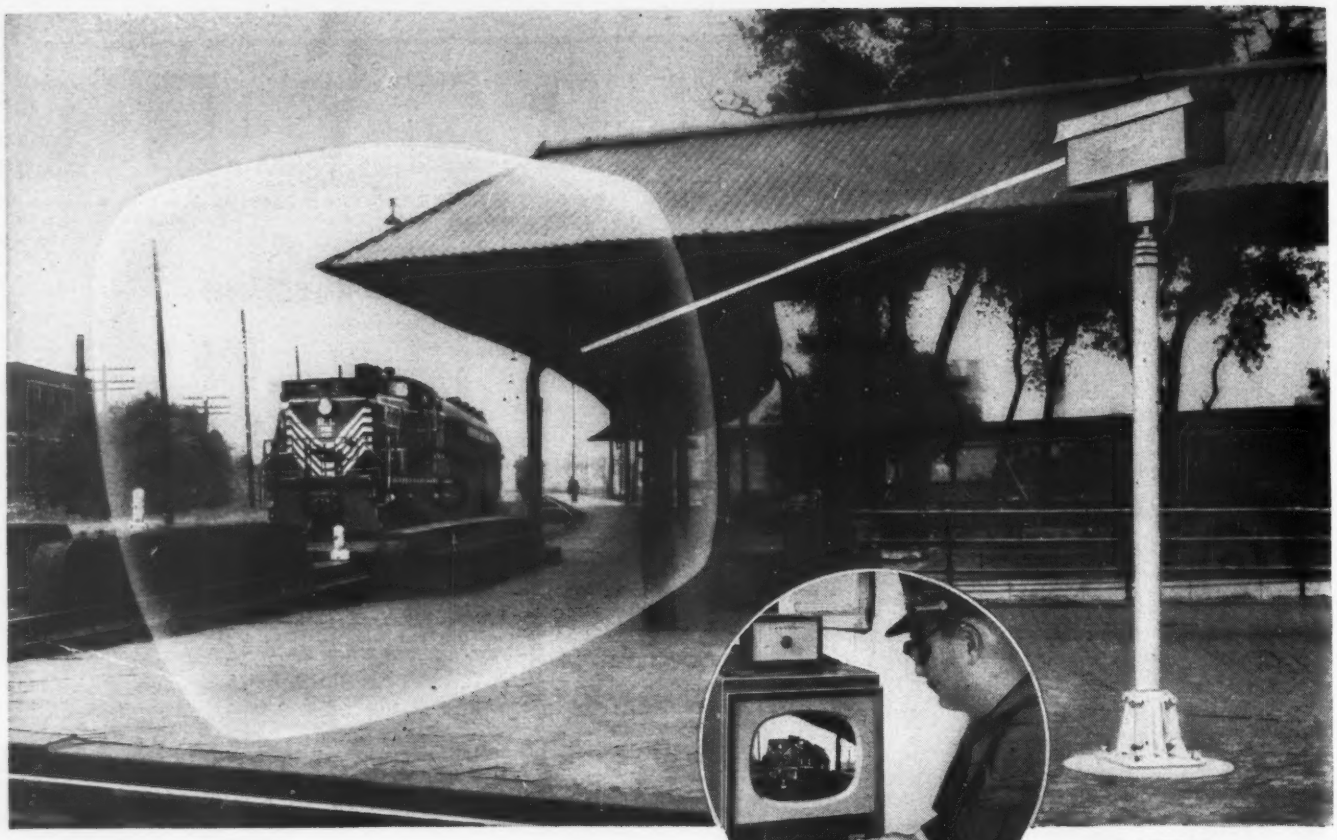
Assistant for Programming
Brig. Gen.
Ben I. Funk
Ext. 5-1120

Deputy
Col.
Chester G. Martz
Ext. 6-6333

Administration Office
Maj. Glenn H. Adkins
Ext. 7-1113

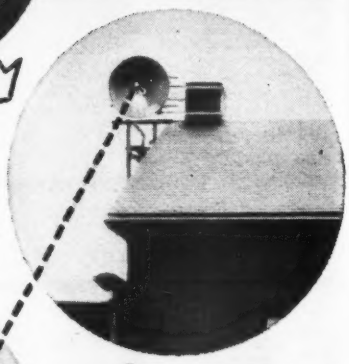
ANG Affairs Office
Col.
Joseph L. Montag
Ext. 7-2132


Deputy Director Mobilization Planning
Col. Vincent T. Cannon
Management Services Office
Lt. Col. Francis J. Karhn
Ext. 2-9172
Office of Inspection
Maj. George G. Hedbloom
Ext. 3-2328
Office of Procurement Committee
Mr. Russell W. Burns
Ext. 2-7231
Programs & Analysis Office
Col. Richard B. Uhle
Ext. 2-2105
Aircraft Division
Col. Carl F. Damberg
Ext. 3-2307
Aeronautical Equipment Division
Col. Ellis H. Wilson
Ext. 2-4101
Airlines, Maintenance & Service Contracts Division
Col. Robert M. Creech
Ext. 2-4157
Readjustment Division
Col. James L. Steele
Ext. 2-4219
Support Division
Col. Francis J. Carr
Ext. 2-7254
Industrial Resources Division
Col. Charles L. Monroe, Jr.
Ext. 2-1226
Air Materiel Areas
Air Force Depots
Aviation Depot Groups
Equipment Authorization Division
Col. Orie W. Coyle
Ext. 5-3210
Procedures & Field Operations Division
Col. Donald E. Eggleston
Ext. 5-4114
Programs & Requirements Division
Col. Ralph C. Rockwood
Ext. 6-0319
Materiel Control Division
Col. Maurice E. Glaser
Ext. 7-3134
Cataloging and Standardization Division
Col. Asher B. Robbins Jr.
Ext. 5-3204
Property Disposal Division
Col. James M. McCampbell
Ext. 6-2338
Research & Analysis Division
Albert J. Shower
Ext. 6-9227
Maintenance Engineering Services Division
Col. Maurice L. Dyer
Ext. 7-0101
Air Transportation Division
Col. Edgar L. Sawhill
Ext. 7-1112
Traffic Division
Col. Frank L. Holmes
Ext. 7-0223
Packaging and Materials Handling Division
Col. Robert L. Mason
Ext. 5-9161
Middletown AMA
Middletown, Pa.
Maj. Gen. Lyman P. Whitten
Middletown 5521
Sacramento AMA
Sacramento, Calif.
Maj. Gen. William T. Hefley
WAbash 2-1511
Warner Robins AMA
Warner Robins, Ga.
Maj. Gen. Kingston E. Tibbetts
(No Number Required)
San Bernardino AMA
Maj. Gen. Edward W. Anderson
San Bernardino 7211
Wright-Patterson AFB, Ohio
Col. Paul L. Barton
Ext. 6-1316
Gentile AFD
Dayton, Ohio
Brig. Gen. Leslie G. Mulzer
MAdison 6551
Wilkins AFD
Shelby, Ohio
Col. Narce Whitaker
Shelby 4-1610
Rome AFD
Rome, N. Y.
Brig. Gen. Alfred Maxwell
Rome 3200
2900th Air Depot Wing (Mobile)
Kelly AFB, Texas
Col. Henry O. Bordelon
San Antonio, WAlnut 3-5411, x. 5490
3079th Aviation Depot Wing
Wright-Patterson AFB, Ohio
Col. Harry C. Porter
Kenmore 7111, x. 6-5311
3101st USAF Logistic Control Gp. (Atlantic)
Brooklyn Army Base
1st Ave. and 58th St.
Brooklyn 50, N. Y.
Brig. Gen. Darr H. Alkire
GEdney 9-5400
Installations Division
Col. Edward C. Gill
Ext. 5-5229
Manpower & Organization
Col. Ethan R. Pearson
Ext. 5-1100
Operations & Services Division
Col. Edward F. Stoddard
Ext. 6-3338
Military Personnel Division
Col. James C. Selman
Ext. 5-7210
Mobile AMA
Mobile, Ala.
Maj. Gen. Frederick R. Dent Jr.
Hemlock 8-3461
San Antonio AMA
San Antonio, Texas
Maj. Gen. Thetus C. Odom
WAlnut 3-5411
Ogden AMA
Ogden, Utah
Brig. Gen. Manning E. Tillery
Ogden 5-2211
Oklahoma City AMA
Oklahoma City, Okla.
Maj. Gen. William O. Senter
PErshing 2-2271
Spain AMA
APO 285, New York, N. Y.
Brig. Gen. Leo P. Dahl
Gadsden AFD
Gadsden, Ala.
Col. Solomon J. Zoller
Gadsden 6-9271
Mallory AFD
Memphis, Tenn.
Col. William P. Sloan
Memphis 48-4411
Topeka AFD
Topeka, Kansas
Col. Brunow W. Feiling
Topeka 5-6211
Chelf AFD
Maywood, Calif.
Col. Walter S. Lee
ANgelus 5292
Budget Division
W. Gorman (Actg.)
Ext. 5-4214
Management Engineering Division
Lt. Col. O. S. Birdsall
Ext. 6-1313
Finance Division
Col. James H. McCown
Ext. 6-4136
Management Analysis Division
Col. Dan H. Yelding
Ext. 5-6223
Central Procurement Financial Division
Col. William H. Matthews
Ext. 3-3111
Statistical Services Division
Lt. Col. James F. Burton
Ext. 6-3325
Programs Division
Col. Lawrence L. Lewis
Ext. 5-6122
Mutual Security Division
Col. Fred E. Nelson
Ext. 6-4228
Communications-Electronics Division
Col. Charles A. Thorpe
Ext. 7-3106

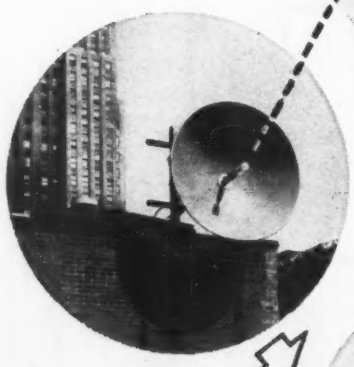


1. A weather-proof, rotating Farnsworth TV camera, mounted on the platform of the Rock Island's busy Englewood station, scans the main-line crossing.

2. The visual information is fed by cable to a TV monitor at the station.



3. Simultaneously, the picture is transmitted by Federal microwave from an antenna on the station roof.



4. A similar antenna receives the picture at the LaSalle Street Union Station and feeds it to another monitor there.

5. Thus, six miles away, Rock Island executives can see the actual loading and unloading of passengers, baggage, and mail, as well as other railroad operations.

Railroad's significant test of

IT&T

VISUAL COMMUNICATION SYSTEM

suggests many applications for closed-circuit TV combined with microwave relay

THE Chicago, Rock Island and Pacific Railroad has shown by this pioneering test how IT&T's TV-microwave system can help solve railroad traffic problems in high-density areas.

The same modern communications technique—product of IT&T research and development—is applicable to the solution of many other problems of traffic control and industrial operations over almost any distance and under practically all conditions.

IT&T

INTERNATIONAL TEL and TEL

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION
67 Broad Street, New York 4, N. Y.

For further information on closed-circuit TV and microwave relay for railway use, address Federal Telephone and Radio Company, 100 Kingsland Road, Clifton, N. J.

NEW *coverage and* **EXTRA** *benefits now offered by*

the improved AFA TRAVEL ACCIDENT INSURANCE POLICY

Rate remains the same: $1.50 per $1,000

(Option A—Extended Aircraft Coverage—Available at 50¢ per $1,000 additional)

- Medical expense coverage upped from $100 to $500
- You're covered anywhere in the world, 24 hours a day
- You're covered while riding as a passenger in **any** air, land, or water conveyance licensed for the transportation of passengers for hire
- You're covered while driving or riding in **any** auto or motor truck (including getting in or out)
- Maximum coverage upped from $10,000 to $25,000 for adults
- You can buy it for your wife
- You can buy it for your children (over 5 and under 21, domiciled with family) up to $5,000 for each child
- Coverage not only for accidental death, but for accidental loss of sight or limb as well
- Option A not limited to U. S. planes

Through exclusive arrangement with Lloyd's of London AFA is pleased to offer this unique, improved travel insurance policy to its members. Maximum coverage is offered at moderate cost through the economies of group coverage. You can provide your dependents with as much as $25,000 extra insurance protection. No physical examination is required. If you don't have one of our insurance application blanks, drop us a line.

Important Notice:

Policies run concurrent with membership. Current policies may be increased to the new $25,000 limit; payment will be pro-rated according to coverage increase and length of time present policy has to run. Members who are not policyholders may apply at any time; payment will be pro-rated according to length of time membership has to run.

All future policies will include the new features.

AIR FORCE ASSOCIATION

Mills Building, 17th & Pennsylvania Ave., N. W., Washington 6, D. C.

COVERAGE PER UNIT OF $1,000
(Premium cost: $1.50)

For accidental death, dismemberment, and medical expenses resulting from accident, occurring only while riding as a passenger in any air, land, or water conveyance licensed for the transportation of passengers for hire, or while driving or riding in any automobile or motor truck, including mounting and dismounting, 24 hours a day, world-wide, compensation is as follows:

1. Accidental death $1,000
2. For permanent total loss of sight of both eyes 1,000
3. For permanent total loss of sight of one eye 500
4. Loss of two limbs 1,000
5. Loss of one limb 500
6. Permanent total loss of sight of one eye and loss of one limb 1,000
7. Medical expenses not reimbursed by other insurance (irrespective of number of units) up to 500

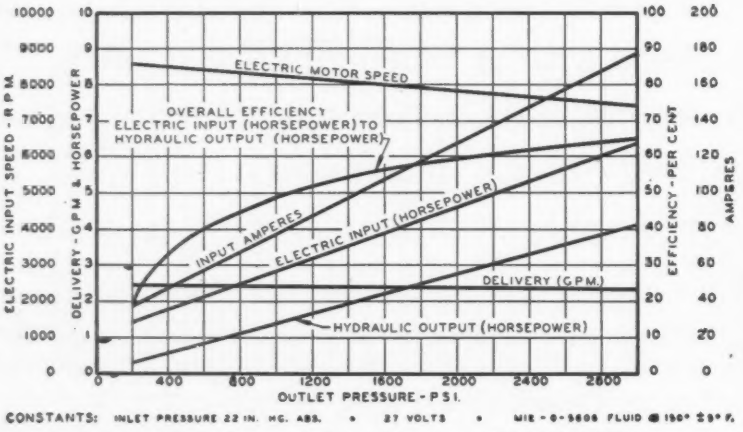
OPTIONAL ADDITIONAL AIRCRAFT COVERAGE (Option A) . . . $.50 additional per $1,000 (When Option A is desired it must be purchased for the entire amount of each individual policy. You can't take part of your policy with Option A and part of it without Option A. Children are not eligible for Option A.) Option A extends coverage to include accidental death, dismemberment, and medical expenses occurring while riding as a passenger in any licensed aircraft, or in any tried, tested, and approved military aircraft which aircraft is being used at the time solely for transport purposes, provided such aircraft is being operated at the time by a person holding a valid and current certificate of competency, or its military equivalent, including mounting into or dismounting from any of the foregoing or being struck by aircraft propellers or jet blast.

LIMIT OF LIABILITY. The Insurer's Aggregate Limit of Liability with respect to all insured persons holding certificates issued under this master policy while in any one aircraft shall not exceed $200,000.00. Should the total of the individual limits of liability with respect to such Insured Persons while in any one aircraft exceed $200,000.00, then the amount applicable to each Insured Person shall be proportionately reduced to effect a proportionate distribution of the said Aggregate Limit.

FOR EMERGENCY HYDRAULIC POWER

USE A DEPENDABLE VICKERS® MOTORPUMP

Model AA-19033. Vickers Electric Motor Driven Auxiliary Hydraulic Pump for 3000 psi.


ELECTRIC INPUT SPEED - R P M.
DELIVERY - G P M. & HORSEPOWER
EFFICIENCY - PER CENT
AMPERES
ELECTRIC MOTOR SPEED
OVERALL EFFICIENCY
ELECTRIC INPUT (HORSEPOWER) TO HYDRAULIC OUTPUT (HORSEPOWER)
INPUT AMPERES
ELECTRIC INPUT (HORSEPOWER)
DELIVERY (G.P.M.)
HYDRAULIC OUTPUT (HORSEPOWER)
OUTLET PRESSURE - P.S.I.
CONSTANTS: INLET PRESSURE 22 IN. HG. ABS. • 27 VOLTS • MIL-O-5606 FLUID @ 150° ± 5° F.

Performance Curves of Vickers Motorpump Model AA-19033.

★ **PROVEN RELIABILITY**
These Motorpumps have accumulated remarkable records of dependability on numerous military aircraft and major airlines.

★ **HIGHER OVERALL EFFICIENCY**
Vickers Piston Pumps have 92% overall efficiency . . . resulting in higher motorpump overall efficiency.

★ **LESS WEIGHT**
High pump efficiency and low starting torque permit use of a smaller, lighter electric motor. Total weight of Model AA-19033 is only 33.9 lb. including radio noise suppressor (3.4 lb.); hydraulic pump weighs only 2.18 lb.

★ **EXPLOSION PROOF**
Conforms to Specification MIL-M-8609.

★ **LOWER POWER DEMAND**
The more efficient pump means less current drain . . . longer emergency operation.

★ **DIRECT DRIVE — NO GEARING**
Ability of pump to operate at high speed permits direct drive at 7500 rpm.

★ **LOW STARTING TORQUE**
Less than 10% over maximum running torque.

★ **SMALLER SIZE**
Higher overall efficiency, low starting torque, and high pump speed save space as well as weight.

For more information about Vickers Motorpumps, ask for new Bulletin A-5207.

VICKERS INCORPORATED
DIVISION OF SPERRY RAND CORPORATION
1526 OAKMAN BLVD. • DETROIT 32, MICH.
Application Engineering and Service Offices:
El Segundo, California, 2160 E. Imperial Highway (ORegon 8-2503)
Arlington, Texas, P.O. Box 213 (ARlington 4-4171)
Detroit 32, Michigan, 1400 Oakman Blvd. (TOwnsend 8-5100)
Additional Service facilities at:
Miami Springs, Florida, 641 De Soto Drive (Phone 88-7340)

TELEGRAMS: Vickers WUX Detroit • TELETYPE "TWX" DE89 • CABLE: Videt Detroit

6930

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Our newly announced policy to carry two companies on our major systems through Phase I development will introduce a true competition in our major procurement areas. So we are endeavoring to devise new means to obtain more realistic and truer competition in our procurement.

We are endeavoring to obtain guarantees of performance in development-production work from our contractors. In the past year or two we have declined profit allowances for contractors' failures to perform either in product performance or in timely production. We are currently working on a test contract to obtain firmer guarantees from contractors for meeting established product performance criteria and established schedules. . . .

Our philosophy of pricing has developed considerably during the past year and has crystallized into the pattern we will follow in the future. We know, as a result, that we will continue our efforts to buy Air Force materiel at close firm prices. By close prices we mean prices that are fair and reasonable to both contractors and the Air Force, but at the same time prices that will encourage efficient and economical operations. To achieve close prices we will continue to emphasize price analysis and price negotiation, and we will develop competitive situations whenever possible. We recognize that our efforts in this direction can be made easier if we can develop between ourselves and contractors a common understanding of our job. We also realize that our job will be easier when we dispel any impression that our objective in negotiation is the reduction of price alone. We believe that this emphasis on close pricing is good for all concerned: the Air Force, the contractor, and the taxpayer. . . .

Another aspect of procurement that we cannot ignore in our attempts to achieve the best prices possible is the relationship between price and the timely development of new products. We will continue to be faced with the job of maintaining superiority of weapons. We can do this by encouraging and urging contractors to maximum effort in development. This may mean expenditures of a greater proportion of each procurement dollar for product development and improvement. It will be our job to achieve this faster product development while still maintaining a reasonable relationship between costs of development and cost of delivered hardware.

In accomplishing this objective, we will work even closer with our counterparts in the Air Research and Development Command. The harmonious relationships among the development, the procurement, and production sides of the Air Force are paying off, not only in achieving this objective but in improving over-all Air Force performance in all areas where the problems of both Commands are so interrelated.

Much has been and will be written in the near future about the profits in the aircraft industry. Whether or not the average over-all profit allowances are out of line is a matter of opinion, particularly in those many instances where a high percentage of profits are plowed back into facilities and development for the advancement of the aircraft industry and airpower. However, in the profit area we are placing major emphasis on performance. We will continue to consider the risk assumed by the individual contractor, both as to types of contracts employed and to capital supplied. . . .

In the area of subcontracting, our policies which were established within the past couple of years will continue. We will continue to encourage our primes to make extensive use of subcontracting and fully utilize our strong small business structure throughout the United States. One new aspect, in addition to these existing policies, will be our efforts to utilize for major subcontracting activities those facilities in our basic aircraft industry which may become idle. Another new procedure which we will shortly establish is to arrive at an estimate of the subcontracting structure prior to the time of completion of the negotiation for a contract. This will of necessity be part of our examination of the over-all facility requirements which I will now discuss.

The control of facility expansions has recently been re-emphasized by detailed instructions from the Department of Defense. In the past seven years we have spent $2.3 billion in industrial facilities in order to produce the many items urgently needed for the Air Force production buildup. With the development of the aircraft industry into a mature position in our national economy—greater reliance must be placed on self-provisioning of facilities by the industry. We will support this emphasis by critical search for open capacity prior to the placement of contracts for supplies, services, or research and development work.

The stabilization of our procurement program over a long period of time introduces another major new problem to the aircraft industry, a problem which it would not have been concerned with in periods of feast and famine. With a continuing level program of a substantial size over a number of years, the modernization of plant and particularly equipment becomes a major factor that must be considered by the industry as well as by the Air Force in our concepts and policies.

One incentive to modernize plants will be to reduce costs in order to be competitive. Another incentive is the recently approved depreciation methods which in some instances provide for up to seventy percent write-off of purchased machinery in about half its physical life. We may find that we also have the job of seeking re-evaluation by the Treasury Department of estimates of depreciation life on some of our equipment to take into account the rapid loss in economical usefulness that is characteristic of our industry. . . .

Not only has our stabilized procurement and production program affected our current policies, but it also will have a definite effect on our mobilization plans. Likewise, the change brought about by the hydrogen bomb and the long-range bomber is altering our views toward mobilization. With a small production program we, of necessity, need to emphasize paper planning. We planned to build up massive forces as quickly as possible. The new weapons may not give us the time to carry out such plans and our emphasis must shift to one of readiness to rapidly accelerate the production of our industrial structure.

Basically, our approach will result in the selection of our most critical weapons systems and creating through a somewhat higher level of inventory, the capability to rapidly accelerate production over shorter periods of time in an emergency. . . .

These are a few of the major policy changes and changes in emphasis that are guiding our procurement and production relations. Some have already been implemented, others are being prepared for implementation, and still others are under consideration. These changes are dictated by a changing situation. They are all designed to insure our common objective of maintaining a strong air arm which is ready to meet any emergency and which is first and foremost designed to prevent war and insure peace. These policies are designed to insure a strong air industry which is a full partner with the military in maintaining a strong, modern, air establishment in being at a reasonable cost to our nation.

Working together we can insure the achievement of our common objectives for only in this way can we be certain that we will continue to maintain the best Air Force in the world. —END

The Supply Picture

Maj. Gen. Frederick J. Dau

DIRECTOR OF SUPPLY AND SERVICES, AMC

IN OUR Air Force today we can visualize the supply job or problem as that of equipping (or re-equipping) and providing continuous material support to Air Forces wherever they may be—whether tactical, strategic, or support—including both US Air Forces and certain allied Air Forces. Involved in this job is a long series of functions or actions. We start with a determination of what is required in dollar terms for budget processing. We continue this determination of what is required in order to tell our buying activities what quantities of what items are needed at what destinations.

We then must be prepared properly to receive, store, and distribute the materiel under a world-wide stock control. For the materiel subject to repair, we must provide for its return to an appropriate overhaul facility and provide the necessary spare parts to perform the overhaul. Finally, we must have a systematic means of determining that which is no longer required and provide for its disposal in accordance with legal and sound practices. . . .

We all fully realize that an increasingly effective Air Force substantially depends on modern weapon development and that most of these developments involve complexities. During World War II we procured initially from the aircraft manufacturer for support of the B-17 bomber approximately 6,500 different supply items. A proper comparison today might well be the B-47 where our initial provision encompassed some 20,000 items. In the over-all, during Fiscal Year 1955 we added about 182,000 items to our Air Force catalog. During this same period we were only able to phase out of the supply system about 65,000 items. At the end of June this year, we had approximately 923,000 active Air Force supply items, in addition to about 400,000 items which are supplied by the Army through cross-servicing agreements.

In dollar terms, the size of our problem is impressive. Our Zone of Interior depots have inventories valued at almost $8 billion. This figure does not include, for example, about $2 billion worth of stocks located at our bases, about equally divided between the Zone of Interior and overseas.

Obviously the large Zone of Interior stocks, the wholesale operation which supports our activities world-wide, must be dispersed into reasonable management packages as well as to reduce vulnerability, provide for rapid supply action, and maintain economy in transportation. Without going into detail as to our management system, I should point out that each item of supply is managed world-wide by one of our fifteen depots, regardless of which depots hold the actual physical stock. Thus we insure against duplication and assure competent responsibility Air Force-wide.

The introduction of each new weapon means thousands of additional line items, and the retention of older aircraft for other purposes means similar retention of older line items in the system. Nevertheless, in 1952 and '53 there was a substantial leveling off. The major factor producing this leveling off was our extreme efforts toward expanding the "local purchase" program. This program was aimed at removing from our depots every item that our bases could readily obtain either from commercial sources or the General Services Administration. At the present time our bases procure in this fashion approximately 135,000 supply items. Each base commander budgets the necessary funds to enable him to make his purchases expeditiously from local sources.

While this program was successful in "holding the line" for a couple of years, note that in 1954 the trend again was radically upward. Fortunately we had another scheme in the mill which again put on the brakes. In 1953 we had reached the logical conclusion that we could not manage all the items in the inventory under the same ground rules. In order to have categories of materiel for applying varied management techniques, we proceeded to divide our inventory into cost categories and so labeled them in the catalogs. The lowest cost category, consisting of those items costing $10 or less, includes about seventy percent of our line items, and yet represents only a small fraction to hold a higher inventory level of these inexpensive items thus reducing the frequency with which they had to requisition for re-supply from the depots. It meant a small additional outlay for inventory, but we more than counter-balanced the added inventory cost by reducing the inventory allowances of the high-value items.

As many of you know, one index of effectiveness of supply support is the number of aircraft out of commission for parts expressed as a rate against the number of active aircraft. It is a rate that can only accidently reach zero since many items that would put an aircraft out of commission would not, in all good sense, be stocked at each base where that aircraft might land. Except for very new aircraft involved in engineering problems, a five- or six-percent AOCP rate would generally be considered as very good. On the other hand, there are certain aircraft for which it pays to go all-out to reduce this rate to the barest minimum. I refer specifically to those aircraft that are in the war plan for immediate operation. During the past year this rate has gone down remarkably to the unprecedented figure of one percent. . . .

You recognize that many of our war plan aircraft are in more or less constant movement. Many wings or squadrons participate in rotations for extended periods to overseas bases. Conventionally they have taken with them certain supplies known as flyaway kits designed to support them for a short period of time and, of course, limited by the capacity of their organic airlift. The Air Materiel Command was supposed to follow this up with more extensive supply support in the form of reserve "tables." These tables are rather bulky and hence airlift was normally not available so we were forced to ship them by surface starting prior to the rotation in order to have them on hand in time, an exercise not very realistic for war. It is well proven that the character of supply demand is indeed unpredictable, that a reserve table of supplies that would meet every demand would in fact be the full range of depot stocks.

On the other hand, the actual usage from a supply table was extremely small. The answer to this, initiated last November, was a system whereby a unit proceeded on rotation with its flyaway kit and reported back daily to AMC usage from the kit or other supply demand. The AMC control point for any particular rotation thereupon produced the item needed either from a reserve table in the United States or from depot stocks and shipped by air to the unit on rotation. The system has worked with remarkable success. It has illustrated very strongly that at least in support of our aircraft the tonnage requirements

are not as great as many would have predicted, but the key lies in the frequency of guaranteed delivery.

I should not leave you with the illusion that the institution of materiel airlift as a regular feature of a military establishment is an easy proposition. Transport operators, whether military or civilian, plan their own logistics on the basis of cargo generation and are quick to point out that inaccuracies in these projections are not only uneconomical but also make planning and operation of the airlift itself most difficult. The nature of military supply demand is certainly one involving many unpredictables. In general we find that frequency of aerial delivery is much more important for sustaining a combat-ready force than total tonnage or ton miles. Supply people have long been familiar with this unpredictable demand situation and have used the only available solution—stockpiling a full range at each point of demand.

Our efforts to reduce these stockpiles involve educating all others in the military establishment to this same fundamental, and getting their cooperation in solving it. For example, I should mention what to my mind is an unprecedented and outstanding action on the part of the Air Force. Possibly not too many of you realize that we are now supporting two substantial overseas areas without the use of overseas depots—the Northeast Air Command and Alaska, both substantial steps toward proving that modern supply in remote areas does not necessarily require conventional stockpiles of supply.

In our effort to reduce inventories, there are other developments besides rapid transportation that have a radical effect. I shall mention two. The first is the transmission of supply demand. We can no longer afford lengthy communication time such as is inherent even in modern air mail. Electrical transmission is the alternative but not merely in the conventional sense. We now have in our system a mechanism which transmits a requisition, in the form of a punched card, instantaneously in the same form over telephone lines or radio circuits. Not only is much time conserved in actual transmission but additional time and effort is conserved in processing at both ends. We now have our depots in the Eastern part of the United States connected in this fashion. We anticipate the entire US will be covered in a few months and that at least one or two overseas circuits will be operating prior to the end of 1955.

Most of you are at least somewhat familiar with achievements in the development of electronic data processing machines. Any supply operation, particularly one concerned with a million different items, necessarily involves the handling of mass data both for inventory control and for the determination of future requirements. Conventional punch cards allow for little more than a stock number and a minimum of application, interchangeability, and transaction information without running into an involved and time-consuming trailer card operation. Modern electronic equipment with immense storage capacity and ready access gives us the opportunity to handle information in a form that management can use intelligently far beyond any previous capability.

More and more we are soliciting help from industry in getting the most proper solution to several of our problems. Many of you are familiar with our gigantic problem of provisioning new equipment. In the days when new weapons entered the system only occasionally and when their complexity was comparatively minor, judgment could be applied to procurement through provisioning in a more or less informal, mutually agreed fashion. Today provisioning is a mammoth undertaking with thousands and thousands of new items involved in the support of many new end items. On many new items the basic "know how" is in industry. The translation of this knowledge into spares forecasts, description and supporting technical data ultimately is reflected in better support for the end item in the field. We have relied greatly on industrial performance in this area and our reliance has been well-founded for we have, I think, achieved an excellent mutual understanding and working relationship.

For example, many of the manufacturers are now "class coding" provisioned items in order to simplify and expedite transmission of bulky lists to our managing depots in order to obtain a quick review and finalization. We have a tremendous job in cataloging new items. At the same time we recognize that item description can be more readily and better accomplished at the source and more and more industry is entering this act. In both instances, we and industry gain in more timely action, while the Air Force as a whole benefits tremendously by more complete and prompt support.

Again referring to provisioning, mass procurement in this manner made it obvious a few years ago that we could not hope to deal in complete detail with every item provisioned. We instituted a high-value program and were successful in isolating over half of our initial aircraft support dollars into only two or three percent of the items procured. Many of you here know that in this fashion we are comparatively successful in applying detailed management judgment to the bulk of the taxpayer's dollar. One of the encouraging facets of this program has been the way industry has picked it up and cooperated wholeheartedly. It is not a question of the Air Force doing it on its own. It is rather a question of joint decision and mutual effort with many of the constructive recommendations coming from the industry side. We feel that this relationship is in accordance with the best interests of the Air Force and the national economy, for the alternative would be building larger federal defense agencies to do all the work.

In conclusion, I wonder if many of us appreciate the unprecedented nature of the supply management job and therefore the true pioneering that must be done. Since 1950, the so-called peacetime Air Force has been charged with maintaining a tremendous military structure on an immediate war footing. Historically we have poured manpower and material resources into the supply function during war and even more rapidly attrited these resources down after war. Never before has the Regular establishment been called upon to manage such an enormous inventory with such speed and precision on an indefinitely prolonged basis. The job itself had to be defined and the people with the necessary managerial vision in turn had to be found or developed.

Thus I consider our major unsolved problem as one involving personnel. Formulating advanced concepts, explaining their soundness and necessity to all concerned, initiating the actual reforms or changes, and insuring complete understanding Air Force-wide (as well as among those who support or direct the Air Force) are difficult tasks. . . .

In an effort to attempt long-range sound progress in this area, similar to the Air Force achievements in the fields of strategy and tactics, we are starting this fall the first Logistics Course and allied Research Center. Over the years we expect to develop not only a nucleus of well indoctrinated over-all logistics managers but also to evolve, within the Air Force, a real capability of keeping logistics doctrine abreast of other Air Force doctrines. In this connection, we hope we have instilled throughout the Air Materiel Command an attitude of soliciting new ideas from all sources as well as utilizing them wherever they help solve any facet of our problem. I sincerely believe we have gone a long way toward dispelling any semblance of the "not invented here" complex. As Director of Supply I reinforce this statement by hereby giving you my personal solicitation for any good bet we may have missed.—END

Getting the Goods There

Brig. Gen. Raymond L. Winn DIRECTOR OF TRANSPORTATION AND SERVICES, AMC

THE advanced logistic system narrows itself down to three basic essentials:

- The expedited flow of information,
- The availability of the material,
- The rapid movement of cargo.

I am here to speak primarily about the third point—the rapid movement of cargo, and the functions of packaging and materials handling, which are closely associated with it. You will remember that last December the Air Force Association sponsored a symposium in Washington, D. C., on the subject of an air logistics system.

At that time, both General Twining and Secretary Talbott emphasized that we were well along the road toward having expanded and modernized the combat elements of the Air Force, and were now taking vigorous action to improve the logistic system to support it. They both emphasized the rapid flow of information and the expeditious movement of cargo. While the emphasis was then, and is now, upon the air movement of AF supplies and equipment to forces deployed overseas, they were mindful of the fact that airlift was not the complete answer to a logistic system.

The Air Force *still* depends upon *all modes* of transportation for the movement of its supplies. It is trying to identify those items in the inventory which, because of their high dollar impact upon our budget, or because of their urgent need by our customers, should be transported by air. We look forward to the day when the Air Force will have the necessary airlift capability to deliver these identified supplies to all of our customers worldwide. Progress in this field in the last year or so has been most heartening.

However, we must not forget that the mission of the Air Material Command is to be ready now, with the resources currently available to us to support our fighting units wherever they may be located. It might, therefore, be of some interest to this group, to know about some of the things that we have done in the recent past.

We now employ a system labeled "the High-Speed Concept" which consists of four specific implementing actions. The first of these actions is high-speed within the continental United States. We have long recognized the competence of the commercial transport system within the United States. We know that on some commodities, to some places, expedited surface transportation can do a completely satisfactory job for the Air Force Logistics System. . . .

Therefore, our concept is briefly stated in the Current AMC Transportation Routing Regulation which says, in effect, that carrier or combination of carriers will be used to ship certain selected items of material, which will result in delivery to the customer in the shortest possible elapsed time. This Directive gives our transportation officers complete latitude and authority to select that mode of transportation, and that carrier, which will produce the desired results. . . .

As a second phase of this High-Speed concept—high-value articles or urgently needed items are being airlifted in the Zone of the Interior by Logair. Logair is a scheduled air transport system operated by air carriers under contract to the Air Force.

These carriers use their own equipment and flight crews to connect those points in the ZI from which air traffic generates to which it is destined, under the management of AMC headquarters. These points, of course, are the AF depots, the AF bases, and the aerial ports of embarkation.

The third phase of the High-Speed concept, which has recently been implemented, is the airlift of all aircraft engines to overseas areas. This program has been in effect since April 1955 and has resulted in decreasing the transportation time to our overseas customers from about seventy days to twelve days, for example, from Oklahoma City to Tokyo.

All of you are aware of the extremely high cost of the modern jet aircraft engine. When we reduce the purchase of this item by this number of pipeline days, we once again reap a double benefit:

- The user enjoys the fastest possible response of the logistic system to his demands,
- The dollars we save from the reduced engine-buying program add up to a net saving to the taxpayer.

In short, in the over-all cost, it is actually cheaper to support our deployed forces with aircraft engines by air, than it is by slower surface means.

The fourth and last action we have taken, is to introduce into this overseas airlift pipeline, other high-priced commodities that are used in the support of deployed forces. These articles are small in volume but extremely high in cost, such as: spare parts for navigation, communication, and the armament systems, which go to make up the complex modern combat airplane. Here again we have found that this accelerated service to the customer overseas comes at a small cost.

Thus we are striving to keep our expensive combat aircraft in readiness to do their assigned mission. Not only do we save dollars by not having to pre-position large quantities of these supplies in the theater, but on such a rapid resupply basis, we find that our units overseas can be supported by relatively small increases in the air tonnage required. In implementing this program, we again use the same methods as in the aircraft engine program. That is, high-speed transport within the United States to the aerial port, then by MATS to the overseas user.

As I said before, these programs are only the first steps we are taking in arranging for the fastest possible flow of cargo from the source of supply to the user. We know that many more commodities can be identified that will more than pay their way not only from an improved service standpoint, but in the actual economics of total dollars spent in support of our Air Force. As we develop more streamlined procedures, identify more items that are airlift candidates, and most important, generate an increased airlift capability, we will obtain even greater benefits.

Let me depart now from the transportation phase of this High-Speed concept, and speak for a moment about its allied functions which are of equal importants. This is in packaging and materials handling. . . .

We cannot exploit to the fullest the inherent economies of working from reduced stockpiles world-wide, unless

(Continued on page 96)

supersonic safety

for Americ[illegible]airmen

WEBER EJECTION SEATS PROVIDE SPLIT-SECOND ESCAPE

Two seconds from decision . . . to parachute safety! That's all it takes a pilot of Convair's F-102A all weather, jet interceptor to abandon ship . . . if he gets into trouble . . . even at supersonic speeds. Ejection sequence starts when pilot raises hand grip to dump cabin pressure . . . unlock and jettison the canopy. Another 15° of movement of the hand grip raises forearm guards and locks shoulder harness inertia reel. Pressure on the trigger then *safely* ejects the pilot, and 2 seconds later his lap belt automatically opens freeing him from the seat. The ejection cycle is completed with only 30 lbs. of pressure on the hand grip, so pilot in positive G condition needs only to move his wrist to eject. Weber's design, development and production skills are daily being called upon to solve complex problems like this.

MANUFACTURERS OF: ejection seats · pilot and crew seats · passenger seats / buffets · wash basins and other interior equipment / Aerostands · Aeroramps / subcontractors of major airframe components

WEBER AIRCRAFT CORPORATION

2820 Ontario Street, Burbank, California

we assure ourselves that we will not transport excess packing around our cargo, and unless we see to it that the increased speed of the transport aircraft is not dissipated by unnecessary delays in loading and unloading.

We have developed an inner and an an outer pack or, as we call it, "a suit of underwear and an overcoat," for a sizeable number of items that are in our inventory. We store these items in our depots with both packs installed.

When the decision is made to ship by surface means, we leave the outer pack in place. However, if the decision is made to ship by air, the outer pack is removed and a bare skeleton of packing materials is used to protect the article while it is in transit.

We have developed new pallets and collapsible containers of the very lightest materials. These items are adaptable to air or surface movement, and provide the necessary protection with a minimum of packing weight.

In order to fully exploit these two programs, we recognize that the packer in our depots can do a better job of protecting the material while in transit, if he knows the type of transportation that is going to be used in the delivery of supplies. Therefore, we have developed a method by which the packing line is informed of the mode of transportation to be used, even before the supplies are selected from the warehouse and sent to the packing line.

This is a rather simple administrative procedural step, I admit, but it has been one of the most significant advances we have made in assuring that we do not over-pack Air Force supplies when they are being moved from place to place. We have coined an expression to describe this operation. We call it "precision packing." As a result of all of these programs, since early in 1953, we have reduced the tare weight of all AF supplies, moving by air transportation from forty-five percent to fifteen percent of the weight of the article being shipped.

One other program in this field deserves special mention.

When we decided to airlift aircraft engines to overseas destinations, we concurrently developed a lightweight engine dolly, designed not to exceed twelve percent of the weight of the engine being shipped. This is a drastic change from the steel pressurized can we have used to protect our engines in transit when we ship them by surface modes. In many cases, this steel can weigh as much as, or more than, the engine being transported.

In the field of materials handling, we have made strides in mechanizing the flow of material through our depots and to the transportation dock.

We have had relatively little success, however, in improving the methods of handling material from the transportation dock to the transport vehicle itself. We are substantially still working with World War II methods. This is particularly true in the techniques of loading and unloading aircraft. It is in *this area* that we need imagination and creative assistance from everyone concerned, both inside and outside of the Air Force. One approach to the problem is to build specialized loading equipment, such as loading docks, that will permit the expeditious movement of cargo from the air freight terminal to the aircraft.

Another approach is to move the aircraft closer to the air freight terminal in the same manner employed in berthing ocean-going vessels, and use the various pieces of materials-handling equipment, which are already standard items such as fork lifts, roller conveyors and hand trucks, in order to more rapidly move the cargo to the vehicle. We feel that the Air Force must adopt elements of both of these systems since permanent loading docks can only be successfully applied at large fixed installations, such as we enjoy within the United States.

At the forward combat bases, we must introduce completely new concepts of materials handling and develop new pieces of equipment that will expedite the loading and unloading of large transport airplanes with a minimum of fixed facilities. The alternative is to develop a logistics carrier entirely self-sufficient in this area.

These approaches, as you can see, deal only with getting the cargo to the vehicle. Much remains to be accomplished in the internal design of the aircraft itself to improve the placement and tie-down of the cargo. This is a problem for which there is no ready-made solution.

For each piece of built-in handling equipment, a weight penalty must be paid. The resultant decrease in the efficiency of our air transport vehicle causes us to take this approach only after a great deal of study and examination of alternative methods. We are continuing our research on this problem.— END

THE AIR MATERIEL COMMAND

Keeping Ready and Able

Col. Clare W. Bunch
DEPUTY DIRECTOR,
MAINTENANCE ENGINEERING, AMC

WE WITHIN the Directorate of Maintenance Engineering inherit a sizeable portion of the over-all mission responsibility of AMC. Ours is the task of fulfilling the Maintenance responsibilities assigned to AMC in support of the USAF mission. We carry out these responsibilities through Staff supervision and technical direction over the maintenance, overhaul, repair, manufacturing for emergency needs, and modification of aircraft and equipment. This work is done in Air Force establishments, through cross-servicing agreements, or by Contractor participation. In addition, we are responsible for establishing all maintenance standards, techniques, and procedures applicable to all Air Force agencies, and for the rendering of technical assistance to AF commands as required.

During World War II there was a slogan which I'm sure many of you remember:—"Keep 'em Flying." Today this could be our motto with a significant addition: "Keep 'em Flying"; and, "Keep 'em Combat Operational to the maximum extent, consistent with the state of the art."

The validity of an Air Force in being as a deterrent to war hinges upon two very important conditions: First, readiness. We must put weapons systems into the air against an enemy when needed. Second, these weapons systems must possess a combat capability equal to or greater than that of the enemy if we are to be successful.

The first of these conditions gives rise to our Air Force maintenance program. This program consists of periodic inspection to assure continued functioning of equipment and the repair and overhaul program to keep our equip-

ment in good operating condition under normal wear and tear.

The second of these conditions, combat capability, gives rise to a major portion of our modification program.

Modifications are of several classes and have their origins in several different sources, but for the moment let us say they consist of: "Combat capability improvements as a result of development work." "Combat capability or mission capability improvements as a result of operational deficiencies discovered through usage under field conditions."

Safety of flight conditions which must be corrected, and maintenance improvements to increase ease of maintenance decrease maintenance man-hours and improve the serviceability of the product.

Readiness requirements dictate that our maintenance program must be a continuing program.

Combat capability improvement and refinement through usage dictate a continuing modification program to maintain technical excellence or superiority.

Technical superiority at any one time is not enough. We must maintain a state of technical superiority in our weapons systems—keeping pace with the state of the art, expanding our horizons, and at the same time making sure, to the extent possible, that our improvements to a given weapon system fall within the normal growth potential of that weapon.

The change from the old-to-the-new; from piston engine to jet power, with its resulting change in composition of Air Force, has added to the already great task of maintenance and modification. This change in complexity has been made at a greater rate than ever before when you consider we have come from a pre-Korean strength of forty-eight wings to 121 wings in January 1955 and will achieve a goal of 137 wings in the near future.

These changes have resulted in an increased drain on the national economy. The maintenance task has increased in size and complexity and the meager maintenance resources of the Air Force have been heavily taxed.

All these things, plus increased critical attention to the budget, have caused AMC to become very much aware of the necessity for "Doing More For Less," hence the slogan, "More Air For a Per Dollar," coined by General Rawlings a few years ago.

We have had to change our thinking, methods, and we have had to look ahead. As a result, management improvement concepts have been developed into management practices to meet the growing need.

Examples of management improvements which we have developed and implemented in the area of Maintenance Engineering are: The IRAN concept of aircraft overhaul; Project Bench Check for increased service life of accessories; the application of the life insurance actuarial methodology in determining aircraft engine life expectancy; this same procedure is to be applied to high-value accessorie and components. . . .

The growing emphasis being placed on the weapons system has taken into account most of what I have already said and in turn has placed emphasis on the need for accessibility, maintainability, improved reliability in design, and improvement of products in use.

The term product improvement, when used in this sense, means more than just fixing the trouble. It has as its objectives increased ability of products to perform their designed function; increased reliability; decreased maintenance man-hour requirements; decreased parts or spares support; and increased service life with a corollary decrease in overhaul requirements. . . .

About two years ago we started working on the design of an Air Force-wide product-improvement program to meet the above objectives. This particular program was completed and implemented in January of this year.

Before starting to research the problem, we laid out two general requirements to be met:

First: We wanted to improve the ability of equipment or weapons systems to perform the intended function by securing essential changes in design during the early stages of *test, production,* and *in-service use.*

Second: We wanted to assure reliability and performance of equipment or weapons systems to meet established operational requirements by improving design and material specifications, and standards of quality control.

For years our only source of deficiency information from the field has been the unsatisfactory report. There was no sorting capability. The thousand of URs stacked up in desks and files with no means of separating the important from the relatively unimportant. There was no method of "flagging" a trouble area before it developed into a panic situation. Too many times we were dealing with after-the-fact information.

In our depots we did have another source of deficiency information through the use of the Disassembly Inspection Report which did provide some factual information on engines, but this system failed to meet the need in that it was difficult for the AMAs to analyze rapidly and correlate this information with experience gained from the UR system.

We contacted the Navy who had discontinued their UR several years ago in favor of a short form failure report and found that they were swamped with thousands of filled-out forms which lost much of their usefulness because of the absence of narrative information.

The RAND Research Corporation had been operating a test project on failure reports in conjunction with certain Air Defense Command units in which they were using a short form quick check-off type of failure report. This was being recommended as a substitute for the UR by many.

We next went to segments industry—not only the aircraft industry, and electronics industry, and the automotive industry. We studied the various methods employed in the collection and processing of deficiency data.

The results of our efforts are contained in T.O. 00-35D-54 which describes our new Product Improvement Program and the mechanics of operation.

We believe the Product Improvement Program represents a big management improvement in the manner in which the Air Force will handle its material deficiency program in the future. In essence the Product Improvement Program is a means by which the Air Force establishes three separate systems of deficiency reporting and provides for the integration of this information at a properly centralized point so that the information reaches the point where remedial action can be taken.

In the past we have not had a mechanism for gathering the necessary deficiency information from the units in the field. We have not had channels established whereby this information could flow directly to the point where the responsibility for remedial action resided. We have attempted in this new program to correct this. We have endeavored to set up three mutually supporting sources of deficiency information, the formats of which are so arranged as to make this information readily available for analysis and capable of easy integration into an over-all deficiency picture of any given product.

Under the concept of decentralizing the responsibility lies with our production managers in our aircraft prime depots and our commodity prime depots. This product manager is responsible for the in-service performance of his product. He will be the central receiving agency for deficiency information. He will have the responsibility for evaluating and digesting this information and for making

(Continued on following page)

an engine action when necessary so that the best possible fix may be determined and corrective action instituted with a minimum of delay.

The three sources of deficiency information which we have finally determined to use are the Unsatisfactory Reports, the Failure Reports, and the Tear Down Deficiency Report. Each of these fulfills a peculiar need. They are mutually supporting and capable of integration into an over-all evaluation of product performance. Most of you are familiar with the unsatisfactory report. For many years the UR was our only source of deficiency information from the field. It served its purpose well when the Air Force was small and when the equipment and aircraft used were simple and uncomplicated. After the Air Force grew in size and the equipment became more complicated, it was apparent that the UR, by itself, was no longer adequate to handle the task. Accordingly, our first efforts went into carefully examining the UR system with a view toward redesigning it to handle its portion of deficiency reporting in the most expeditious manner.

We redesigned the format and utilized a multilith mat so that field activities could prepare a UR with one pass through the typewriter. As an example of the little things you can do to make progress, the line spacing on the old UR form bore no relation to standard typewriter spacing; the new UR format has a line spacing identical to typewriter spacing. Believe it or not, this results in a savings of two-thirds the typing time since the typist no longer has to adjust the paper for each line.

The routing of the UR form from base level to the prime commodity AMA has been changed. Breakage type URs and URs which are clearly Quality Control items go directly to the prime aircraft AMA. Other types of URs concerning performance of equipment, crew comfort, relocation of equipment, and similar types of URs are now routed through major command headquarters for a statement of command position on the face of the UR. They are then routed from Command Headquarters to the prime AMA where appropriate action is taken.

The second of the deficiency reporting systems is the Failure Reporting System. This is a short form, quick check-off type of report and represents a mass data statistical type "tool." These failure reports come in a check-book type form and are filled out by the man in the field experiencing the difficulty and transmitted through the man directly to the commodity prime AMA. A failure report differs from a UR in that a UR is a request for remedial action on an individual situation and will be used to report conditions which the user considers operationally unsatisfactory, eventually hazardous, or dangerous. Each UR has significance and as submitted by the using activity represents a formal request for an individual requirement for corrective action. The failure report is, as I mentioned before, a statistical-type tool and is designed to obtain statistics on a great number of deficiencies or failures, malfunctions experienced in every day operations on various Air Force equipment. Individual failure reports have little significance and often times to the user may be considered routine.

However, when accumulated Air Force-wide, these routine failures take on significance. This mass statistical data will be analyzed through the use of electrical accounting machines and significant levels will be developed for individual equipments and parts. The use of normal statistical procedures in arriving at significant levels is mandatory so that we do not embark on a wild goose chase in attempting to remedy conditions falling within the normal random range of failures.

Establishing a significant upper and lower level for a given part or piece of equipment provides us with a control point to quickly detect an out-of-the-ordinary large number of failures; or an out-of-the-ordinary small number of failures. Both cases are of interest to us. The first requires corrective action and the second may mean that we have a design or operating condition or maintenance practice which will result in much better normal life, and, therefore, these things should be investigated and applied to other equipment.

The third form of deficiency reporting is that of Tear Down Deficiency Reporting (TDR). This report takes the place of the old disassembly reporting, (DIR). The DIR was of limited usefulness. It accumulated a mass of data principally on engines, but that data was difficult to analyze and difficult to correlate with information contained in URs. The new Tear Down Deficiency Report format has been developed to give us particular information on products at the time of tear down or overhauling and will be filled out by depot personnel, contractor personnel, and in the case of jet minor repair, field personnel at the unit accomplishing jet minor repair. These forms when completed will be forwarded to the prime engine AMA. In the case of commodities that are normally overhauled, the Commodity prime and the information will remain there.

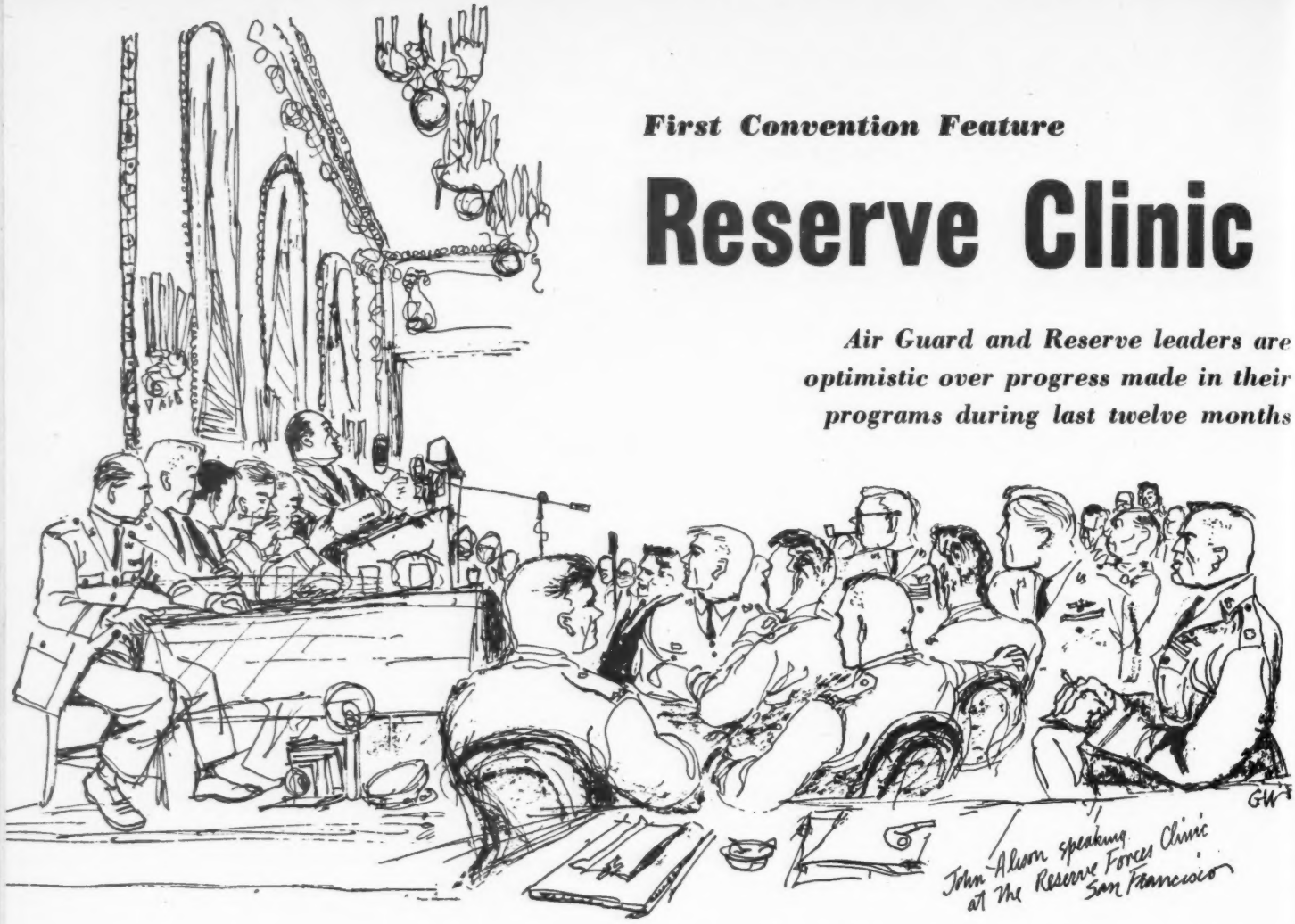
Now I have described three reporting systems and the type of data contained in each. The important thing is how do we use this data? It will be correlated at a central evaluating agency within the aircraft prime depot and commodity prime depot. Here the information will be analyzed and broken-down so that significant areas of deficiencies will flag themselves and remedial action can be initiated.

We have made a study of industrial methods in handling and processing statistical data and have come up with what we believe to be the best system for each type of reporting. We are using edge coded punch cards for the UR and for the Tear Down Deficiency Report. We are using IBM equipment and punch cards for the processing and sorting of the failure report data. We will make available on request to the prime aircraft and commodity manufacturers monthly and quarterly summaries of the data as obtained at our central analysis branch in our various AMAs and Depots. We will make available on request individual copies of the edge coded URs for the manufacturers' use. We will also make available on request punch card decks on a monthly basis which will represent the monthly input of failure reporting data. We will also make available tear down deficiency report edge coded cards.

Through the intelligent evaluation of these data, we expect to more quickly evaluate product reliability in the field, and preparation of this data in tabular and summary form will be passed on to ARDC. We expect to have the results of our in-service experience constantly before them so that they will be able to prepare new performance and material specifications, thus designing into our new equipment the features which eliminate mistakes.

This program, even though it has been operating since the first of the year, is new and it will take time for the mechanism of the new program to function smoothly. It is not perfect; in many respects there will be many changes. However, we plan to refine the program through usage by discovering through usage the soft spots and correct our procedures accordingly. We ask your wholehearted cooperation in an effort to provide the Air Force with better systems capable of better performances, and capable of being maintained with a minimum amount of effort. The task ahead is a big one, it will never grow smaller. The dividend is great—national survival!—END

DOUGLAS P2-C6
Building "stingers" is only one Cline Electric job...
...Cline builds aircraft controls, too
Cline Electric is proud of the part it plays in this country's growing armed might! Whether it's Cline's precision built 20mm guns . . . or voltage regulators . . . or other electrical apparatus for aircraft, you can depend upon Cline's *quality in quantity*. As a prime or subcontractor, Cline Electric produces only the best!
CLINE ELECTRIC MANUFACTURING COMPANY
3407 West 47th Street • Chicago 32, Illinois
Controls by
BUILDING PRECISION INTO TARGET ZERO
ENLIST IN THE U. S. AIR FORCE! WIN YOUR WINGS!



First Convention Feature

Reserve Clinic

Air Guard and Reserve leaders are optimistic over progress made in their programs during last twelve months

By Edmund F. Hogan RESERVE AFFAIRS EDITOR, AIR FORCE MAGAZINE

FOR A year Air National Guard jet fighter pilots have been standing air defense alert at the end of the runway in seventeen strategic locations throughout the country. The program began amid some skepticism that it would work. Not only has the reverse been true but Air Defense Command likes the program so well that it will be expanded in the coming year. So spoke Maj. Gen. Winston P. Wilson, chief of the Air Force Division of the National Guard Bureau at the second annual Reserve Forces Clinic, the event that kicked off AFA's Ninth Annual Convention in San Francisco.

General Wilson told some 1,500 Guardsmen, Reservists, and Regulars who jammed the Gold Room of the Fairmont Hotel that "since the inception of this program the results have exceeded all expectations and, at the request of Air Defense Command, we plan to expand it in the year ahead."

General Wilson made the Guard presentation at the Clinic. The Reserve portion was handled by a Continental Air Command briefing team led by the commander, Lt. Gen. Leon W. Johnson. The over-all Guard-Reserve program, with emphasis on policy, was presented by Maj. Gen. William E. Hall, Assistant Chief of Staff for Reserve Forces.

John R. Alison, AFA's new Chairman of the Board, set the stage for the Clinic with a message from President Eisenhower in which the Chief Executive extended special greetings to AFA members "who are actively training with Air Reserve and Air National Guard units."

These units, the President's message said, "have vital roles in the defense of our country."

Helping to prove the point established by the President, General Wilson revealed that the Guard units on active alert have averaged 100 aircraft hours per month under ADC control and have accomplished "well over 750 scrambles a month with an average of two intercepts per scramble."

The program calls for five pilots to be available at the seventeen locations. These pilots are called to active duty for short periods of time, ranging from one to fifty-nine days. It was in this area that the greatest skepticism arose a year ago. The thought was prevalent that the same pilots would be on active duty all the time and that the tours would not rotate through the squadrons.

To the contrary, said General Wilson, "within the units participating there has been a complete—100 percent—rotation of crews." The experience gained in this operation, he added, "has no equal in a reserve component."

The Air Guard chief revealed that the daily contribution of the Guard to the ADC program involves thirty-four aircraft, eighty-five pilots, and 170 airmen. Through the end of May, he added, Guard aircrews in the seventeen squadrons had operated 17,000 flying hours, participated in 6,000 scrambles, and carried out more than 13,000 actual intercepts.

Over-all, General Wilson said, the Air Guard is in good shape. At the start of the new fiscal year last July, strength stood at 61,000 officers and airmen—a gain of 11,500 in a year.

As the Guard continues to convert from day-fighter to all-weather units, he said, the problem of obtaining observers grows. "But," he added, "our problem here is chiefly a geographic one. Where they are available in sizeable numbers, we have little or no requirement; conversely, where we

have a need for their services, their number is limited."

The number of Guard pilots, General Wilson said, has increased to 3,200—helped along by 369 graduates of the ANG pilot training program. This contrasts favorably with a year ago when only 151 Guard pilots earned their wings.

"I am happy to report," he said, "that the reenlistment rate of airmen is on the upswing—from fifty-nine percent in 1954 to 70.5 percent in 1955 and in May it reached eighty-four percent."

In the year past, General Wilson continued, the Air Guard has added fifty units to its structure and now has 659 that are federally recognized. New members of the Guard family include aviation engineer units, replacement training squadrons, and one air resupply group. Another fifty-seven units will be activated this year, bringing to 716 the unit total by June 30, 1956.

In the field of operations, General Wilson reported that sixty-five fighter and four tactical reconnaissance squadrons are fully operational as jet squadrons. The remaining eight fighter squadrons will be converted to jets very soon, he added. In numbers, the Guard now has 1,100 jet fighters, forty-five jet reconnaissance aircraft, and 131 Douglas B- and RB-26s. Ten C-46s also are included in the inventory for air resupply groups.

Commander of the Continental Air Command, Lt. Gen. Leon W. Johnson.

The Air Guard chief announced for the first time that in the last year the Guard has taken delivery of 100 Northrop F-89 Scorpions and 150 Republic F-84F Thunderstreaks. "The assignment of these aircraft," he said, "has done much to raise the combat potential of the Air National Guard to the level sought by the Air Force. And they have given us the opportunity to demonstrate the capability of a reserve component to actively maintain and operate the complex aircraft which insure the security of this continent."

General Wilson laid particular stress on the Guard's new basic training program. Under this program, the Guard sends its new enlistees to Regular Air Force locations which offer basic training. At the end of the training cycle Guardsmen return to their units.

Last year, General Wilson said, about 4,000 Guard airmen took basic training at Sampson, Lackland, and Parks Air Force Bases. While this number represented an increase of 350 percent over the previous year, he said, "the Bureau would like to see still greater expansion of this program."

He cited Arkansas as an example of how mass participation in the basic training program can be engendered. "This state," he said, "began in early spring explaining the program to prospective enlistees. Only those who indicated in writing their willingness to attend the eleven-week course at Lackland Air Force Base after the close of the public school term were accepted in the units. Efforts of Arkansas resulted in the enlistment of 384 airmen."

General Wilson reported that since 1947 almost $114 million has been obligated for construction of Guard facilities, and that he estimated another $66 million will have to be spent to provide basic operational requirements for all units.

Maj. Gen. William E. Hall, AF Assistand Chief of Staff, Reserve Forces.

The construction program, however, has progressed to the point, the general said, that by fiscal year 1958 all but eight Guard bases will be suitable for jet operations. Jets cannot be operated at the eight sites either because of local opposition or because there is not sufficient real estate available to expand runways. Efforts will be made, General Wilson said, to find new homes for the eight squadrons on these bases.

The general observed that the Guard has grown into a big business with a budget last year of $167 million and a current money authorization of $203 million. Last year, $33 million alone went into pay, allowances, and related support of the people in the program. This year the figure will increase to $53 million. Another $18 million is being spent to support and maintain the newer and more complex aircraft being phased into the Guard's squadrons. Some $12 million is programmed for major procurement.

On a concluding note, General Wilson called attention to the benefits the Guard derives from the Earl T. Ricks Memorial Trophy event, sponsored annually by the Air Force Association. This cross-country test of flight planning and pilot skill, General Wilson said, "has done much to increase competitive spirit and pride of organization within our units and has added greatly to the prestige of the Air National Guard."

This year's event from Ontario, Calif., to Detroit was won by Lt. Col. James A. Poston of Ohio, who received the Ricks Trophy at the Airpower Awards Banquet, climax of the San Francisco gathering (see page 68).

Making the over-all report, Maj. Gen. William E. Hall told the Reserve Clinic that to "think of the Reserve Forces as merely 'Christmas' help, added manpower in times of emergency, is to be myopic, to miss the point altogether."

From left: Frank T. McCoy, Jr., Maj. Gen. Robert B. Landry, John Lerom.

AFA, he said, has consistently emphasized airpower in the round. "It is not just design and production, not just civil and military, not just transport or fighting capability. It is the over-all airmindedness of the people. AFA is one of the very few organizations which has really done something about it. The country needs your sup-

(Continued on page 103)

HELICOPTER INSTRUMENTS AND CONTROLS DEMAND SPECIAL DEVELOPMENT

... they've been getting it at Sperry's Flight Research Center, MacArthur Field

■ One aircraft of the fleet in Sperry's flight research program is the Sikorsky S-55 you see above. This flying laboratory is completely equipped with the latest in helicopter instruments and controls. It is flown by Sperry test pilots, and its crew consists of Sperry engineers who note and record the performance of the instruments and controls under all flying conditions.

■ As a result of over 10 years' constant flight research in this field, Sperry has now perfected a new flight control system which gives precise automatic stabilization and control of helicopters even under the most exacting condition of hovering. In addition to providing precise control, a new automatic stabilization system relieves the pilot of constant, fatiguing manual manipulations.

■ A helicopter integrated instrument system including a flight director has been developed—and, also, a new engine rpm control.

■ Write our Aeronautical Equipment Division concerning your helicopter instrumentation and control requirements.

SPERRY GYROSCOPE COMPANY
Great Neck, New York
DIVISION OF SPERRY RAND CORPORATION

port more urgently perhaps than ever before."

The Air Force Reserve, he said, fits into the context of "airpower" in the round."

General Hall recalled that last January General Nathan F. Twining, USAF Chief of Staff, had issued a memorandum calling for the Air Guard and Air Reserve to attain an acceptable degree of combat capability at the earliest possible moment. This memorandum, General Hall said, called for Air Staff actions directed specifically toward full equipping of Reserve units with aircraft capable of carrying out the D-Day mission, providing adequate facilities and full unit equipment, and supervising and inspecting training programs.

"I could," he said of this directive, "stand here and tell you we have made terrific progress. To me, to General Johnson, and to others of our associates, the past year has been one of both accomplishment and disappointment. We have surely not achieved everything hoped for. Probably nobody ever does."

It is a fact, however, he said, "that the last twelve months have seen a most satisfying improvement in the state of our Air Force Reserve Forces. I do not believe they have ever been so close to the target of combat capability as they are at this moment. We have problems. We always will. But by and large the Reserve Forces are moving in seven league boots toward the objective outlined by General Twining."

In this connection, he said, paid training assignments between July 1, 1954, and June 30, 1955, more than doubled in the Air Force Reserve. Officer paid training assignment strength, he explained, increased 147 percent, with ninety percent of this increase in squadrons giving specialized training. Airman strength, on the other hand, increased by ninety percent, the majority enlisting in combat wings.

He described what has happened in the last year in the Reserve program as "ventilation." This means, he said, that the Air Force has set out to assure that the Reserve is manned by people who are physically, mentally, and otherwise ready to go if needed.

"A major step in this direction," General Hall went on, "was the option letters sent out in April of this year. To be quite candid, these letters invited Reserve officers without obligations who did not meet minimum training standards in 1954 to either fish, cut bait, or go ashore."

These officers, the Assistant Chief of Staff for Reserve Forces said, had the option of being assigned to an active program, retirement, or resignation. In all, just under 80,000 letters were mailed. Results so far, he said, showed that 33,418 had chosen assignment to an active program. Approximately 17,000 resigned and slightly more than 2,000 elected retirement. "This," he said, "means much to the Air Force Reserve in building up combat capability and in opening the way for promotion and participation of those who are really trained, capable, and in earnest."

General Hall dwelled at some length on the selective assignment of airmen being released from active duty who have reserve obligations to fulfill.

"Skilled airmen released from active duty with remaining reserve obligations," General Hall said, "will be assigned to training Category A units in both the Air Force Reserve and Air National Guard. Since there will be an average of about 110,000 going off active duty each year from past July 1 on, we believe that enough will voluntarily participate to fill mobilization needs and thereby greatly enhance the combat capability of every unit."

The general laid to rest the question of whether these airmen can be assigned to the Guard. "I must stress," he said, "that this system will apply to the Guard as well as the Reserve because there has been some confusion on that point."

Continental Air Command, General Hall explained, has been directed to come up with a plan to assign these obligated airmen to fill ANG mobilization requirements. "The selective assignment of Air Force Reserve obligators must be applied to ANGUS units," he said, "on a priority basis equal to that of the Air Force Reserve units." Further, he declared, selective assignment of all officers to fill mobilization requirements will be in motion on January 1, 1956.

In the field of operations, General Hall said, a major change occurred in the past year with the introduction into the Reserve program of the "detached squadron" plan. In the past, Reserve combat wings have trained at twenty-four wing-base locations. Under the "detached squadron" concept, these wings in the future will operate from sixty locations, each supporting a smaller flying unit. By the end of fiscal year 1958, he projected, Air Guard and Air Reserve units will have a combined total of 154 flying locations.

Navigator training squadrons have been introduced in the Reserve program to take the place of pilot training units, which no longer fit into the Reserve mission. General Hall revealed that the Reserve now has nineteen navigator squadrons with instructors in place, aircraft assigned, and recruiting proceeding satisfactorily. In this navigator upgrading program, Air Training Command gives twenty hours of training to each officer in Convair T-29 aircraft at James Connally AFB, Tex. More than 500 Reserve navigators received this training during the summer.

The Air Reserve Center program, established in the spring of 1954, to provide non-flying specialized and general training, also has shown marked improvement in the last twelve months, General Hall said. An additional twenty-nine centers have been activated, making a current total of seventy-nine throughout the country. The goal of 100 centers should be reached by the end of fiscal year 1957, he said.

A definite requirement exists, according to General Hall, for thousands of individuals to be available to the active Air Force for replacement and augmentation on D-Day. The substantial strides made toward providing training for these persons through the centers and through the mobilization assignee and designee programs has

(Continued on following page)

Arnold Air Society cadets shown in front of their display at the Airpower Panorama. Maj. J. B. Booth, National Advisor to the group, is at the extreme left. Gil Petrina, National Commander, is fourth from the right in back row.

been gratifying, he said, "but we have a long way to go." Stumbling blocks, he explained, have been such items as no provision for pay, lack of facilities and equipment, and unattractive schedules.

One of the serious problems facing the Reserve, General Hall said, is the inability of the Air Force to extend to its Reserve units the Air National Guard technician plan. Under this system, members of the unit are employed as civilians in key administrative, operational, and maintenance positions.

"The potential benefits of this administrative scheme are impressive," he said. "Present permanent party personnel would be released for reassignment in the Active establishment and Reserve units would have the assurance that administrative and support people would go with them if and when they were called to duty."

The air technician plan, he recalled, has operated well in the Air Guard and he predicted that it "would also in the Reserve." The plan, however, has been rejected by the Civil Service Commission because CSC argues it has legal complications which, while not applying to the Guard, do affect fundamental principles of federal employment.

With the Reserve program in a state of continuous improvement, General Hall said, the desired combat capability depends upon how rapidly facilities are acquired, new units activated, and adequate equipment and supplies provided.

"Given the necessary funds and authorizations," he concluded, "we believe that our program can be carried quickly to a successful conclusion and that the Reserve forces will soon meet the high standards of strength the nation wants and must have for its continuing security."

In his remarks, the ConAC commander, General Johnson, set the stage for the Continental Air Command portion of the Clinic with a brief summary of the progress that has been made in Reserve and Guard operational activities in the past year.

Col. Harry E. Willard, ConAC director of unit training, covered in detail both the flying and ground training aspects of the Reserve program.

At the beginning of fiscal year 1953, he recalled, the Reserve program included about 1,000 pilots, who flew some 200 aircraft 58,000 hours. By comparison, he noted, there are now almost 4,000 pilots in the Reserve, flying more than 730 aircraft and logging 158,000 hours in the first nine months of the last fiscal year.

Because a large part of the Reserve flying units are scheduled to go either to Tactical Air Command or Air Defense Command on M-Day, Colonel Willard said, "we rely heavily upon the assistance of the gaining command." He termed these commands the "experts who know what the training requirement should be and the standard and procedures to be used."

Basic documents designed to accomplish maximum training have been developed, he said, including a unit training directive containing a detailed program for tactical aircrews; a standardization handbook which essentially outlines the transition program for particular aircraft types; and an aircrew training handbook which takes the complete aircrew through combat qualification.

Colonel Willard reported that ConAC has authorized special fifteen-day active-duty tours in order that Reserve pilots may undergo transition in newly assigned aircraft. These tours, he said, are in addition to the normal fifteen-day active-duty training period for the Reserve unit.

Often overlooked, but very important to the combat potential of the Reserve, Colonel Willard said, is the ground training program. He described this program as "big and complex."

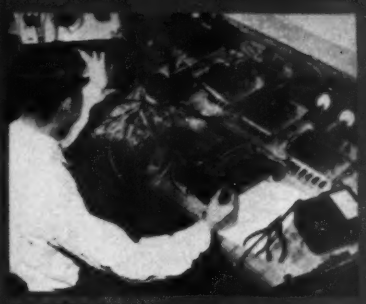
It involves, the colonel said, "training all Reservists assigned to support units to an acceptable technical skill level. These Reservists vary anywhere from the recently discharged college professor to airmen with no previous

(Continued on page 107)

Six vital steps to help strengthen national defense

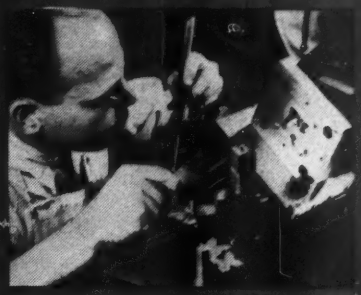
Here are six important steps. Burroughs is performing all of them. They are vital in making our national defenses stronger.

These steps are the complete cycle of defense work. With the extensive and complete facilities at our command, and by working in close cooperation with the Armed Forces, Burroughs is making many important defense contributions. These are in the fields of instrumentation, control systems, communications, magnetic and electronic components and electronic computers. Address inquiries to Burroughs Corporation, Detroit 32, Michigan.

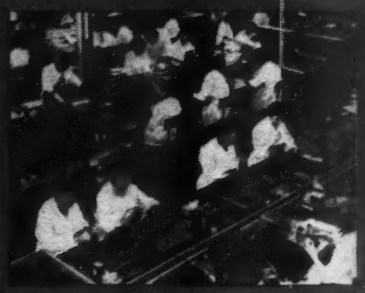


1. RESEARCH

2. DEVELOPMENT

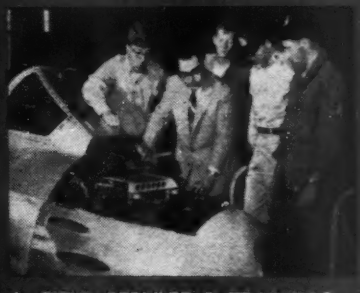


3. ENGINEERING & TOOLING



4. PRODUCTION

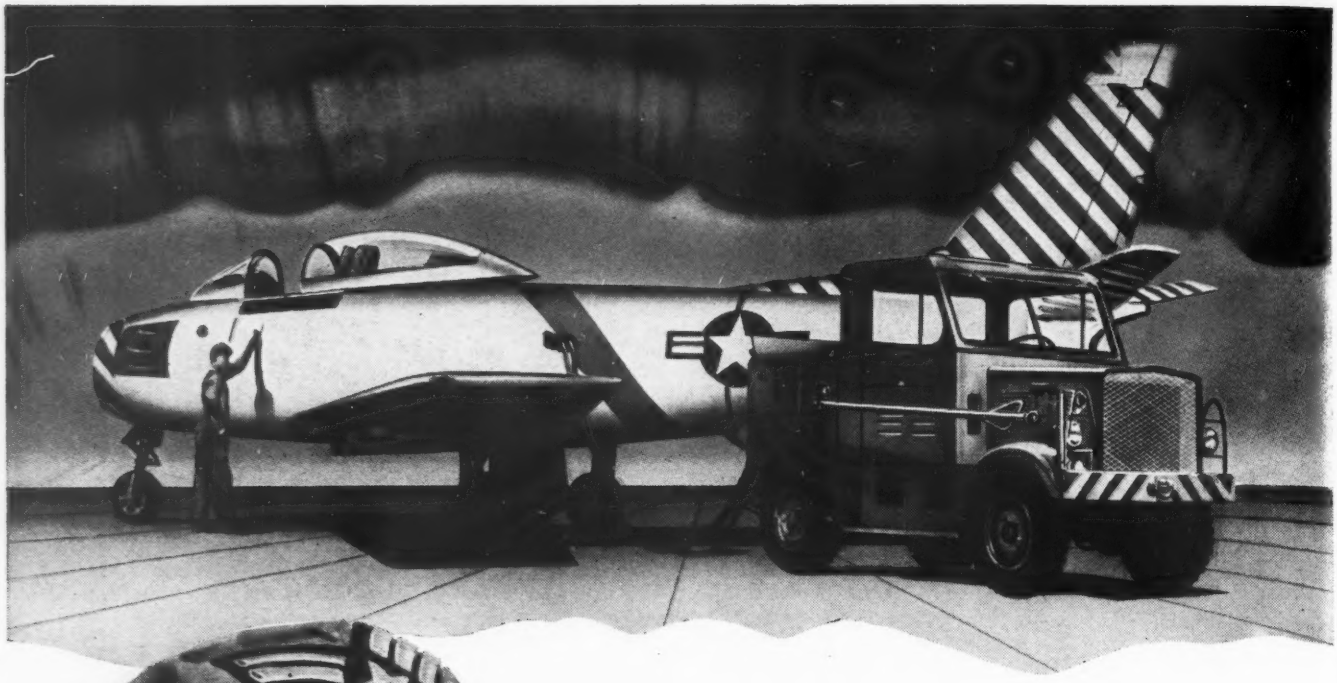
5. TESTING



6. FIELD SERVICE & TRAINING

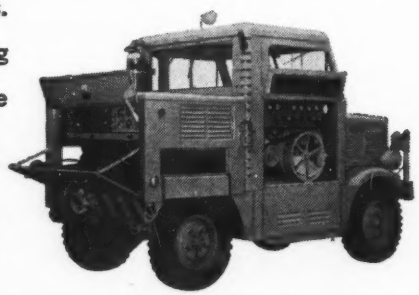
Burroughs

BURROUGHS INTEGRATED DEFENSE FACILITIES INCLUDE:
Burroughs Corporation plants in Detroit and Plymouth, Michigan
Burroughs Electronic Instruments Division, Philadelphia, Pa.
Haydu Brothers of New Jersey, Plainfield, New Jersey
Control Instrument Company, Brooklyn, New York
Burroughs Research Center, Paoli, Pa.



double indemnity!

The versatility of the USAF Tactical Air Command . . . its mobility and atomic capabilities . . . combine with Ground Support equipment to provide assurance of effectiveness ***when seconds mean survival***. ▷ Ground Support equipment of unquestioned reliability is indispensable should the need of defense or retaliation demand that TAC "rise" to the occasion in protection of our freedom. ▷ Through design, development and manufacture, we have solved the most complex ground support problems . . . providing the Tactical Air Command with a self-propelled multi-purpose unit, which combines towing, testing, servicing and/or starting for all types of aircraft under the most difficult operational conditions. The M A-1 and other type ground support units. are now being used extensively by the USAF, Navy and Marines . . . and are ***consolidated for greater power and versatility.***



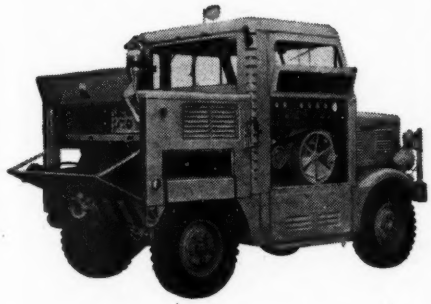
THE ALL-PURPOSE MA-1 HELPS GREATLY TO SOLVE THE MOBILITY PROBLEM . . . FOR ONE UNIT TAKES THE PLACE OF FOUR OR FIVE

IN THE EXACTING FIELD OF GROUND SUPPORT, CONSOLIDATED HAS DEMONSTRATED ITS ABILITY TO MEET THE MOST COMPLEX DEMANDS

CONSOLIDATED
DIESEL ELECTRIC CORPORATION

STAMFORD, CONN. BRANCHES · DALLAS, TEX. · DAYTON, OHIO · SANTA ANA, CAL. · WASHINGTON, D. C.
IN CANADA · CONSOLIDATED DIESEL ELECTRIC CORPORATION · OTTAWA, ONT.

double indemnity!



GROUND SUPPORT

This compact, self-propelled, multi-purpose unit performs all requirements of towing, testing, servicing and starting for jet aircraft.

- A. C. POWER . . . 30 KVA, 400 cycles, 3 phase and 10 KW 1 phase, close regulated.
- D. C. POWER . . . 28.5 volts, up to 2250 AMP. For split or single bus start and servicing.
- COMPRESSOR . . . Air supply up to 3500 psi, 13.5 CFM, 1,000 cu. in. reservoir.
- TOWING . . All-wheel drive vehicle with mechanical or torque converter transmission, as desired.

IN ACTIVE USE WITH U.S. AIR FORCE, NAVY AND MARINE UNITS . . . . Other models of single and multi-purpose ground support equipment are available with any combination of AC and DC power . . . high pressure air hydraulic systems and low pressure air . . . refrigeration and heating.

CONSOLIDATED
DIESEL ELECTRIC CORP.
STAMFORD, CONN.
DALLAS, TEX. • DAYTON, O. • SANTA ANA, CAL. • WASHINGTON, D.C.

RESERVE CLINIC — CONTINUED

military service. They must either be taught a new skill, or kept current in skills they already possess."

To meet this challenge, the training director said, ConAC has established programs which emphasize on-the-job training, supplemented by classroom work. "There is a separate manual," he said, "for most of the airman career fields—definitive in content and outlining what the individual must study, how proficient he must be in his various job elements, along with what to do to acquire the necessary skills."

Colonel Willard noted that the ground training program increases in importance as the complexity of flying operations grows. "Without the skillful service of the medics, the mechanics, the communicators, supply clerks, cooks and all other support personnel," he said, "no flying unit can sustain flight operations."

Although the training problem has increased in complexity, he said, existing programs are working, and "the progress and improvement of Reserve units during the past year indicate that they are producing splendid results."

Of particular interest to participants in the clinic was the report of Brig. Gen. R. Loyal Easton, ConAC deputy for personnel, on the Reserve Officer Personnel Act.

One of the most complex pieces of legislation ever enacted, ROPA went into effect last July 1 and now governs promotion and elimination of Reserve and Guard officers in much the same fashion that the Officer Personnel Act of 1947 applies to Regular officers.

(Since General Easton's report in San Francisco, 51,422 Air Force Reserve officers, in grades ranging from second lieutenant through major, have been selected for permanent promotion. Approximately 21,000 of those promoted are serving on active duty. They must continue to serve in the grade they held prior to promotion, however, if they wish to remain on active duty.)

Despite a monumental task of classifying and auditing personnel records of 170,000 officers on the Reserve rolls as of last September, General Easton revealed, the first seniority list which formed the basis for consideration for promotion was compiled by May 1.

This list, he went on, was reduced by 80,000 when it was screened to determine how many officers had failed to meet minimum participation requirements in the preceding year. In the final counting 40,000 were determined to be eligible and were considered for promotion.

At the time ConAC was screening Reserve officers, boards in the Pentagon were going over lists of Air Guard officers and Reserve officers serving on extended active duty.

(Of the group screened by ConAC, about 29,000 were promoted. The Pentagon boards elevated about 800 Guard officers and the 21,000 Reserve officers on active duty.)

"No act is perfect and ROPA is no exception," General Easton observed. "Congressional amendments have been and may be necessary in the future. Although it is patterned after the law governing Regular officers, modifications were required to meet the differing conditions of the Reserve components."

A temporary solution has been found, he said, in one troublesome area—the number of captains in Tables of Organization flying units. This number is strictly limited in such units as fighter squadrons. Yet the majority of officers are of World War II vintage. Thousands had to be promoted under ROPA. Since ROPA can promote out as well as up, many new captains were faced with the prospect of being promoted out of a cockpit. The solution was found, General Easton said, by "temporary authorization to man any or all company-grade positions with captains through the present fiscal year."

Pointing out that ROPA is an "up-or-out" law, General Easton emphasized that "it is important to each officer to ensure that his record reflects all information concerning himself that is required by a selection board." Participation in the Reserve program is also important, he added. "A high degree of skill and currency of knowledge of present doctrines of airpower are essential to the well-qualified officer."

The original version of ROPA required attrition for total length of service. This was new to the Air Force and presented obvious inequities, General Easton said, noting that Congress in the last session amended this feature to provide a five-year moratorium, thereby softening the impact.

In general, General Easton said, solutions have been found for many of the problems encountered. But, he added, "others remain for study."

Frank T. McCoy, Jr., of Nashville, Regional Vice President of AFA who moderated the Clinic, made the first official announcement during the program of the winners of the Association's first annual awards to the most outstanding ANG and Reserve units

(Continued on following page)

in the nation and to the most outstanding Guard and Reserve airmen in the country.

These awards were established by AFA to stimulate interest in the Guard and Reserve programs. The Reserve unit and airman were selected by a board in Continental Air Command. A similar board in the Air Force Division of the National Guard Bureau made the Guard selections.

The 435th Troop Carrier Wing—more popularly known as the "Flamingo" Wing—was voted the most outstanding Air Reserve unit in the nation. The wing, commanded by Lt. Col. John R. Pountnay, is based at Miami International Airport.

The 119th Fighter-Bomber Squadron of New Jersey was adjudged the most outstanding ANG unit in the country. The squadron, commanded by Maj. John C. Makeley, is based at Newark Airport. This squadron also won the National Guard Bureau's Spaatz Trophy award this year.

M/Sgt. Andrew J. Downey of the 436th Troop Carrier Wing at Brooklyn was voted the most outstanding Reserve airman in the United States. A corrections officer in civilian life, Sergeant Downey was chosen on the basis of his contributions to the military structure of the wing and his continuous voluntary efforts in behalf of recruiting.

M/Sgt. John Fagrelius of the 175th Fighter-Interceptor Squadron at Sioux Falls, S. D., earned the outstanding Air Guard airman award. Sergeant Fagrelius, in civil life the manager of a supermarket, has long been the top recruiter in the squadron and is considered its finest instructor of new men.

The awards to the units and men were presented at a luncheon the day following the Clinic by AFA's outgoing Board Chairman, retired four-star General George C. Kenney.

This year, for the first time, Air Force and the National Guard Bureau assigned selected officers to help Guardsmen and Reservists solve individual problems. The group manned a central location throughout the Convention, handling numerous requests for information and assistance.

As an aftermath to the Clinic, Convention delegates voted seventeen resolutions pertaining to the Guard and Reserve, ranging from equipment for flying units to a request for additional paid drills to meet minimum flying time requirements.

The equipment resolution pointed out that units of the Guard and Reserve have been assigned active air defense missions with obsolescent aircraft at a time when modern fighter aircraft production lines have been reopened. "The combat capability of those Air National Guard and Air Force Reserve units charged with an active air defense role would be enhanced if these units were equipped with first-line aircraft," the resolution declared in asking that immediate steps be taken to substitute new aircraft for obsolescent types and models being phased into these Guard and Reserve defense squadrons.

M/Sgt. Andrew J. Downey, 436th Troop Carrier Wing, Brooklyn, receives award as "most outstanding" Reserve airman from General Kenney at Reserve Lunch

Delegates called upon the Air Force to liberalize its program under which qualified non-commissioned officers may be commissioned second lieutenants. The resolution declared that "little or no opportunity exists" under present policies for qualified non-coms to become officers."

Another resolution would permit Air Force Reserve pilots to log civilian flying time in aircraft having engines rated below 400 horsepower toward the minimum annual requirements established by Air Force Regulation 60-2. A floor amendment deleted inclusion of the Air Guard in this resolution, following an explanation that the Guard is equipped primarily with jet fighters and that time earned in light aircraft cannot substitute for time flown in jets.

The Convention took official notice of the fact that the Reserve officers Personnel Act has resulted in a freeze on promotions at the unit level and asked that AFA make a study with a view toward finding a solution to what has become a vexing problem, particularly in Guard units where commanders always have had authority to recommend qualified officers for promotion as long as a vacancy existed. Application of ROPA, said the resolution, has "resulted in the indefinite suspension of all promotions by local authority because mandatory promotions have exceeded percentage limitations."

One lengthy resolution called for elevation of the Section V Committee on Guard and Reserve Policy to the level of the office of the Secretary of the Air Force and for physically locating this committee within that office. The resolution declared that through various administrative actions of the Air Staff, this committee, established by the National Defense Act, is "being relegated to the subordinate status of an advisory group to the Air Staff, rather than as an advisory group to the Secretary of the Air Force."

Delegates also called upon the Comptroller General to reverse a recent ruling in which he established that the fifteen gratis points authorized by Public Law 810 for membership in a reserve component could not be counted in full toward retirement in any year that a Reservist served fifteen days of active duty. Stripped of legal gobbledegook, the ruling essentially meant that a Reservist could earn retirement points for doing nothing but these same points

M/Sgt. John Fagrelius of the 175th Fighter-Interceptor Squadron, Sioux Falls, S.D., receives outstanding Air Guard airman award from George C. Kenney, left.

Miami's 435th Troop Carrier Wing was named most outstanding Air Reserve unit. Lt. Col. John R. Pountnay, Commander, accepts trophy from Gen. Kenney.

could not be counted if he did something in the same year. In some instances the ruling has served to reduce below the minimum the number of points a Reservist must earn in a year in order to count that year toward his retirement.

Another resolution asked the Air Force to reimburse Reservists who are called upon to perform airlift missions in support of the active duty establishment at those times when such missions mean out-of-pocket expense to Reservists.

In other resolutions, delegates asked for:

- Inauguration of a program of overwater orientation flights for Reserve units on a competitive basis. Aircrews would be scored on their navigation and pilotage.
- Sufficient funds to permit mobilization assignees to have forty-eight paid drills per year and, in addition, fifteen days of active duty service.
- A determination by the Air Force that members of the Air Guard and Air Force Reserve can earn training credits, as covered in AFR 11-8, for attending conferences and seminars sponsored by the Air Force Association for the Guard and Reserve.
- The Civil Service Commission to approve the air technician program which the Air Force has been trying to establish in the Reserve.
- A reenlistment bonus for airmen in Category A and B-1 Reserve programs in an effort to get more highly-skilled Reserve enlisted men to participate.
- Elevation of the office of Assistant Chief of Staff for Reserve Forces to three-star rank. The office originally was created at three-star level but no one of this rank has filled it since Lt. Gen. Elwood R. Quesada, now retired, held the position.
- An amendment to the Selective Service Act to give draft exemption to doctors who join the Air Guard, qualify as flight surgeons, and remain active as flight surgeons in ANG units.
- Department of Defense and Bureau of Budget approval of a recommendation that ANG and Reserve aircrews be authorized an additional thirty-six training periods for the sole purpose of meeting minimum annual flying time requirements.
- Congressional approval of pending legislation which authorizes flight training in the Air Force ROTC program and which provides hospitalization and death benefits for students who volunteer for this training.
- Air Force to authorize Civil Air Patrol cadets to enlist in Reserve wings.

With the adoption of the final resolution the Guard-Reserve participation in the ninth annual meeting ended. But it ended on the note that the tenth AFA meeting in New Orleans next August will open with still another Reserve Forces Clinic.—END

CHANGING ADDRESS?

Make sure you don't miss a single copy of AIR FORCE. Fill out this form and send it to us today. Enclose your old address label.

NAME .....

NEW ADDRESS .....

CITY..... STATE.....

ENGINEERS

Creative Opportunities with Republic Aviation

Research Engineer—Hydraulic Controls

B.S. degree in mechanical or aeronautical engineering with experience on aircraft hydraulic systems. Work involves mechanical and hydraulic problems such as control system frequency response, hydraulic system and control valve characteristics and high temperature fluids, packings, pumps and related components. Must be capable of planning and conducting test programs, designing special test equipment, maintaining contact with vendors and design personnel.

Electronics Engineer

Familiar with airborne electronic equipment (communications, navigation I.F.F., Radar and Autopilots), preferably with 2 to 4 years aircraft experience. Should be a college graduate. Duties will include system investigations, establishing test procedures and conducting environmental tests on airborne electronic equipment and components.

Armament Staff Engineer

Aircraft armament systems analysis. Analyses and evaluation of offensive and defensive systems, weapons effectiveness, aircraft vulnerability, delivery technique studies. Must be self-starter with initiative, requiring little supervision. Requires degree in Math or Physics, ability to prepare reports and deliver presentations.

NOTE THESE REPUBLIC BENEFITS

You'll enjoy a top salary scale, and important personal benefits: life, health and accident insurance up to $20,000, company-paid, plus hospital-surgical benefits for the whole family; and 2/3 of the cost of collegiate and graduate study. NEW ALL-EXPENSE-PAID RELOCATION PLAN, for those living outside the New York City and Long Island area, relieves you of all financial worries. The company pays interview expenses for qualified candidates; actual and reasonable costs of insured moving of household and personal effects, and where necessary, free storage up to 30 days. Also $10 per diem up to 30 days, while getting settled. And of course you'll live and work on fabulous Long Island, playground of the east coast.

Please address complete resume, outlining details of your technical background, to:

Assistant Chief Engineer
Administration
Mr. R. L. Bortner

REPUBLIC AVIATION
FARMINGDALE, LONG ISLAND, NEW YORK

Department of Amplification

The noted aviation expert and author of 'What Is Airpower' in our August issue adds a few more well chosen words to his definition . . .

Gentlemen:

I was pleased to find my definition of airpower, as published by *The American Peoples Encyclopedia,* reprinted in your August issue. I note, however, that the text that was furnished you was from the first printing, in which, inadvertently, the final sentence of the Author's Notes had been omitted. The notes should end with the summarizing sentence: "The air ocean is one and indivisible and must be controlled by a single, homogenous force." A copy of the correct text is enclosed for your record.

I am also glad that you presented simultaneously with my definition the one expounded by Admiral Radford, thus giving your readers an opportunity to compare and assess the validity of both views and to arrive at a single, well-considered concept.

The crux of the trouble with our national defense is that there are almost as many opinions as to the role of airpower in our military scheme of things as there are official spokesmen. We will never forge a correct strategy capable of achieving victory so long as these contradictory views sow confusion among our people, our Congress, and even the Pentagon itself.

In fairness to Admiral Radford, I must agree that his broad definition of airpower *as an economic factor* is acceptable. For that matter, the official definition contained in US Air Force Manual 1-2 is concise and even more all-inclusive, stating that "the term 'airpower' embraces the entire aviation capacity of the United States." But, as I pointed out in my definition, such an interpretation is so broad and confusing as to be almost meaningless if one is to comprehend airpower as a *military* factor.

I am convinced that this basic lack of understanding of what truly constitutes military airpower is at the root of the confusion that reigns in the area of our national security and is the primary cause of our forfeiting air supremacy to the USSR. Unless the meaning of military airpower is thoroughly grasped, the AF will continue to be the junior member of the league. It will never be given the wherewithal to acquire its proper stature as the supreme expression of our national military strength and the dominant factor in our military leadership.

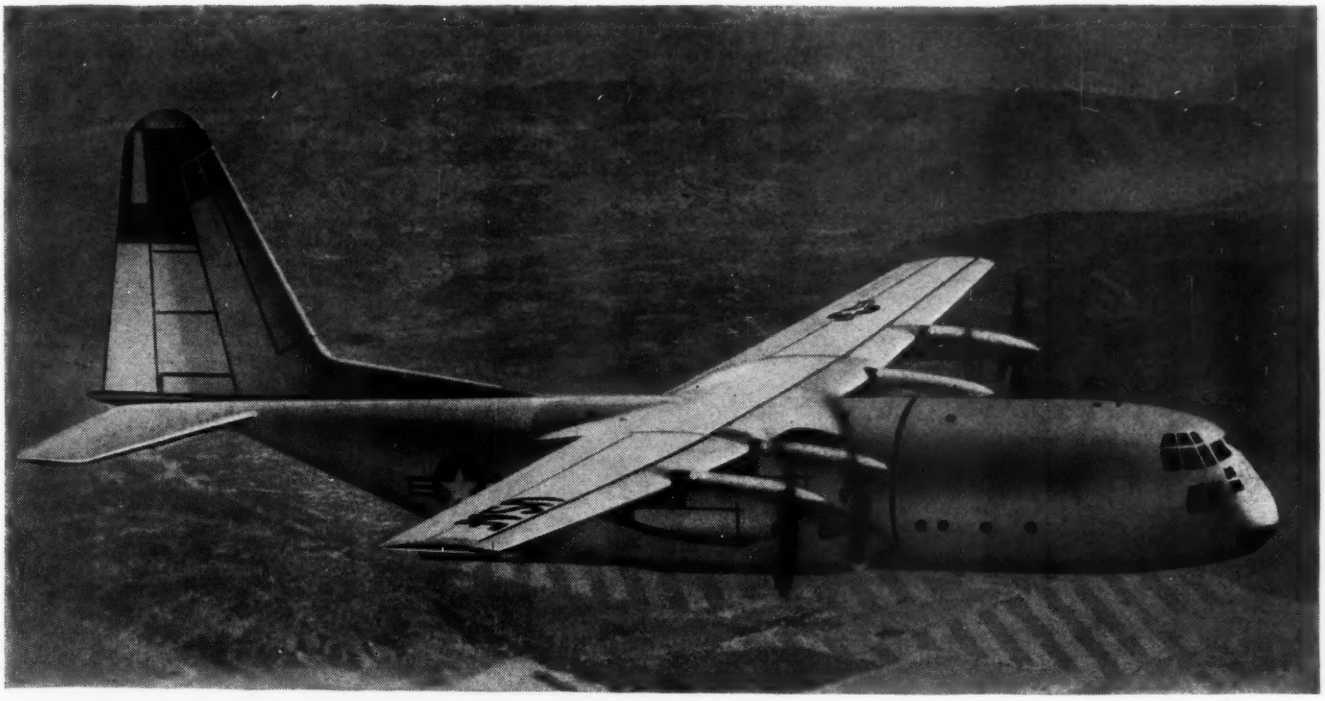
The scope of the Air Force's mission must be fully understood if our country is to shake off the curse of the present antiquated philosophy of balanced forces strategy. Otherwise, America's great creative genius will forever be condemned to labor within the framework of this fallacious concept, and we will continue to fall behind the USSR, not only in conventional aircraft but in intercontinental ballistic missiles (ICBM) and even in artificial earth-satellite development.

Only when the true meaning of airpower is firmly embedded in the national consciousness will we acquire the moral courage to make the fundamental changes in our military planning which alone can provide our country with an Air Force-in-being that has the capacity to achieve and maintain global command of the air *directly* from the continent of its industrial origin. Under the present military set-up, the product of the Unification Act of 1947, these fundamental changes cannot come from within the miltary estabishment. They can come about only under the pressure of enlightened and aroused public opinion.

It is here that the Air Force Association, free from commitments of political expediency, can render the greatest service to the nation. Its members, the Paul Reveres of our time, must hammer away day and night at the mind and conscience of the American people, to instill in them an understanding of global command of the air so that they will call to leadership men who have knowledge, experience, and philosophy attuned to this era of devastating nuclear weapons and global ranges at supersonic speeds.

Very sincerely yours,
Alexander P. de Seversky

BIG NEW LIFT FOR AIR TRANSPORT



Production rolling on New Allison Turbo-Prop-powered Lockheed C-130 Hercules

AMERICA'S first production Turbo-Prop transport – the Lockheed C-130 Hercules – is coming off the lines of Government Aircraft Plant No. 6 in Marietta, Georgia, in growing numbers.

Powered by four Allison T56 Turbo-Prop engines with a total of 15,000 horsepower, this new cargo plane can carry some 20-ton payload long distances *at amazingly low operating cost.*

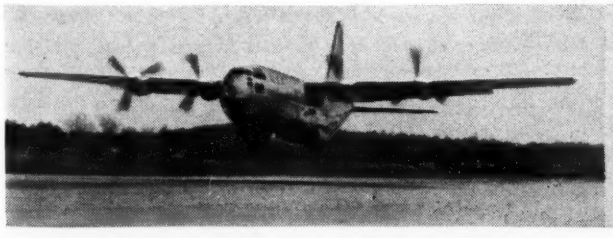
With its exceptional power-to-weight ratio, the Hercules can take to the air at a 30 degree angle after a ground run of less than a thousand feet, considerably less than other planes of comparable size. Its low fuselage floor, 41 inches off the ground, provides truck-bed loading, while the adjustable tail ramp also permits vehicles to drive directly aboard.

Developed for the Tactical Air Command, the Hercules is a highly mobile, high-speed transport, able to rush men and materiels to advanced areas and evacuate wounded.

The Allison Turbo-Prop engine which powers it is the first Turbo-Prop to receive CAA certification for commercial use—a promise of early application in peacetime commercial passenger and cargo service.

ALLISON Division
of General Motors
Indianapolis, Indiana
Builder of Turbo-Jet and Turbo-Prop Aircraft Engines

GM
GENERAL MOTORS
AIRCRAFT POWER



450° F Tachometer Generator

meets modern jet engine requirements

Military specification numbers as used herein are for purposes of product identification only and do not necessarily imply specification conformity.

For use on high performance jet aircraft, the new Jack & Heintz Model H60-164 is a two-pole tachometer generator designed to meet MIL-G-9398.

By utilizing special design elements, this generator operates accurately at the higher altitudes and critical heat associated with advanced flight. It provides reliable and accurate engine speed indication not attainable through the use of present conventional units at a temperature of 450° F.

The special design features which enable J&H to give this performance are:

1. Heat-treated, magneto-type ball bearings.
2. Teflon-insulated magnet wire.
3. Wide temperature range greases for operation from −90° F to +525° F. *The new J & H unit has a breakaway torque of only 1 to 2 inch-pounds after 48-hour soak at −90° F as contrasted to the specified 12 inch-pounds.*

In the past five years, Jack & Heintz has supplied over 100,000 small, lightweight, permanent-magnet a-c tachometer generators to the Military, aircraft engine and accessory manufacturers and commercial airlines. The entire product line includes *sensing units* and *power sources* for:

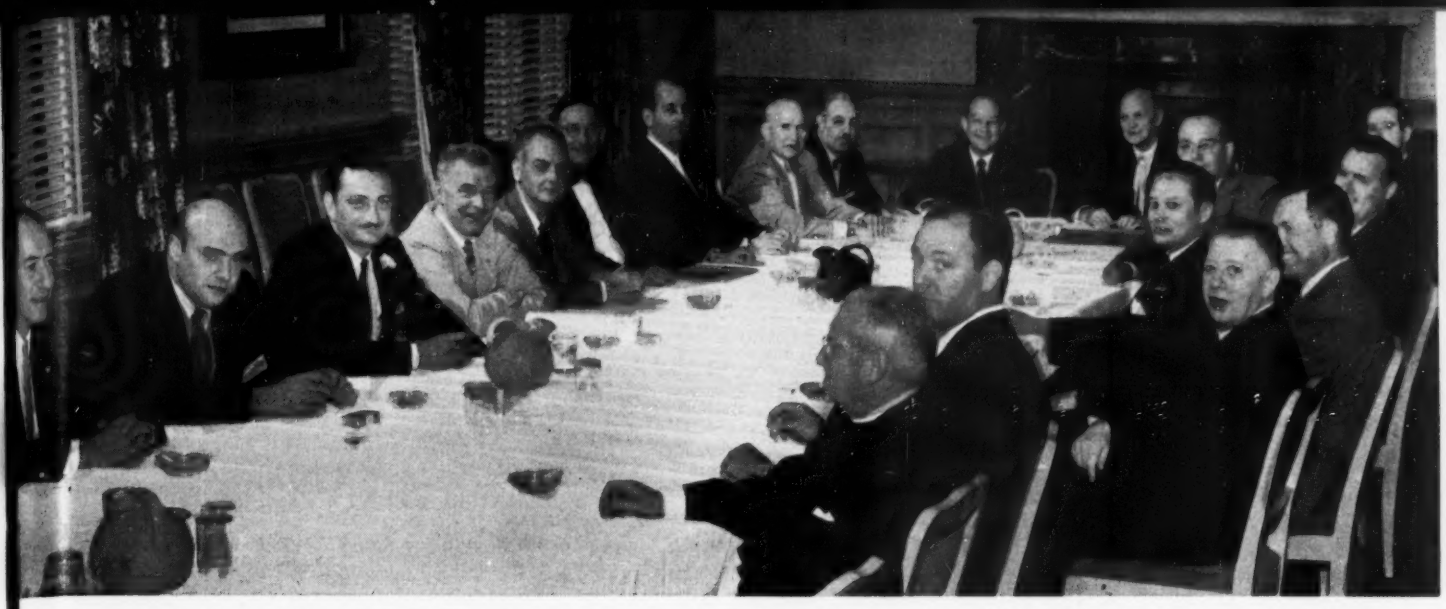
1. Rpm indication
2. Propeller synchronization
3. Aircraft engine analyzers
4. Electronic jet-engine fuel controls
5. Turbine power packages

Whether you want a tachometer generator or any type of small permanent-magnet a-c generator, look to J & H for the answer. For complete information, write Jack & Heintz, Inc., 17640 Broadway, Cleveland 1, Ohio. Export Department: 13 East 40th Street, New York 16, N. Y.

©1955, Jack & Heintz, Inc.

ENGINEERS: Write for free booklet describing unusual opportunities for you at Jack & Heintz.

JACK & HEINTZ *Rotomotive* AIRCRAFT EQUIPMENT



Members of the new Board meet in Sunday morning session. Clockwise from left, Julian Rosenthal; Executive Director Jim Straubel; Morry Worshill; Jim McDivitt; Frank Ward; Sam Hecht; George Hardy; Clements McMullen; Carl Long; new Board Chairman John Alison; new President Gill Robb Wilson; Pete Schenk; Tom Stack; Art Kelly; George Anderl; Merle Else; Gen. George Kenney, outgoing Chairman; Jock Henebry; and Msgr. William Mullally.

At the Convention

What the Delegates Did

THE consensus of the 822 delegates at AFA's Ninth Annual National Convention was that the 1955 meeting was the best yet. For one thing, never before, most delegates agreed, had the yearly reunion been held in more interesting surroundings. San Francisco, with its myriad attractions and "air-conditioned" climate, more than lived up to advance billing.

The cable cars and the Top of the Mark got a workout, Fisherman's Wharf and Chinatown's restaurants fed a procession of hungry AFA'ers, sight-seeing boomed. But with it all, a new Statement of Policy was hammered into shape, a record number of resolutions passed, new officers selected, and all business wound up before the final Brunch.

What the motor pool did might serve as a gauge of Convention activity. The twenty-one cars at AFA's disposal were driven a total of 19,000 miles, equal to more than three round trips between Frisco and New York City. AFA drivers crossed the Golden Gate Bridge 516 times.

In the headquarters Fairmont Hotel Convention business got underway Thursday afternoon, August 11, when Los Angeles newsman Virgil Pinkley sounded the keynote (see page 29). AFA President John Alison presented his Annual Report (see page 33), and work began on resolutions.

At the Saturday morning session the delegates heard Brig. Gen. Robert Stillman, Commandant of Cadets at

(Continued on following page)

AIR FORCE ASSOCIATION'S NEW LEADERS

Elected for the Year 1955-56 at San Francisco, Calif., August 13, 1955

PRESIDENT
Gill Robb Wilson
New York, N. Y.

SECRETARY
Julian B. Rosenthal
New York, N. Y.

TREASURER
Samuel M. Hecht
Baltimore, Md.

REGIONAL VICE PRESIDENTS

New England Region *Thomas C. Stebbins*	**Northeast Region** *Randall Leopold*	**Central East Region** *Charles W. Purcell*	**Southeast Region** *Alex G. Morphonios*	**Great Lakes Region** *Glenn D. Sanderson*	**North Central Region** *Edwin A. Kube*
South Central Region *Frank T. MCoy, Jr.*	**Midwest Region** *J. Chesley Stewart*	**Southwest Region** *Clements McMullen*	**Rocky Mountain Region** *Wm. Thayer Tutt*	**Northwest Region** *Winfield G. Young*	**Far West Region** *Cecil C. Howard*

Pacific Ocean Area Region
Roy J. Leffingwell

NATIONAL DIRECTORS

Chairman of the Board—John R. Alison, Hawthorne, Calif.

****George A. Anderl** *Chicago, Ill.*	****Walter T. Bonney** *Washington, D. C.*	**Beulah M. Carr** *(ex-officio)* *Chicago, Ill.*	****John J. Currie** *Paterson, N. J.*	***George C. Kenney** *New York, N. Y.*	****Merle S. Else** *Minneapolis, Minn.*
****George D. Hardy** *Hyattsville, Md.*	****John P. Henebry** *Park Ridge, Ill.*	***Robert S. Johnson** *Garden City, L. I., N. Y.*	***Arthur F. Kelly** *Los Angeles, Calif.*	***Thomas G. Lanphier, Jr.** *San Diego, Calif.*	****W. Barton Leach** *Cambridge, Mass.*
****Carl J. Long** *Pittsburgh, Penna.*	****James H. McDivitt** *Los Angeles, Calif.*	****Mary Gill Rice** *San Francisco, Calif.*	**Peter J. Schenk** *Fayetteville, N. Y.*	****Dr. Jerome H. Meyer** *Dayton, Ohio*	****Msgr. Wm. F. Mullally** *St. Louis, Mo.*
Gil Petrina (ex-officio) *Cmdr., Arnold Air Society* *College Park, Md.*	***Harold C. Stuart** *Washington, D. C.*	****T. F. Walkowicz** *New York, N. Y.*	**Frank W Ward** *Battle Creek, Mich.*	***C. R. Smith** *New York, N. Y.*	***Carl A. Spaatz** *Washington, D. C.*
****Thomas F. Stack** *San Francisco, Calif.*	**Thomas D. Campbell** *Albuquerque, N. Mex.*	***Edward P. Curtis** *Rochester, N. Y.*	***James H. Doolittle** *New York, N. Y.*	****Morry Worshill** *Chicago, Ill.*	* Permanent member ** Incumbent

the new Air Force Academy, refer to AFA as the Academy's "alumni society," as he previewed the new school's proposed athletic program.

The new officers (see page 113 for summary) were elected at the Saturday afternoon session, with Gill Robb Wilson named new President. Outgoing President Alison became Board Chairman. Incumbents Julian B. Rosenthal and Samuel M. Hecht were shoo-ins for another year as Secretary and Treasurer respectively. Perennial favorite Rosenthal thus started his eighth consecutive year in office, and Hecht his third.

Two new names—Frank Ward of Battle Creek, Mich., and Peter Schenk of Fayetteville, N. Y.—were added to the eighteen-man Board, and three new Regional Vice Presidents were elected. They are Charles Purcell of Pikesville, Md., for the Central East Region; Cecil C. Howard, Pasadena, Calif., Far West; and Alex G. Morphonios, Miami, Fla., Southeast.

Beulah Carr of Chicago succeeded Nancy Scherer as President of AFA's Auxiliary, in a separate election. The new Auxiliary Regional VPs are Ruth Lauxman of St. Louis, Mo.; Kathleen Murray, Pittsburgh, Penna.; and Grace Brinke, Manhattan Beach, Calif. Kay Work, State College, Penna., became Secretary, and Nettie Richardson, Pittsburgh, Treasurer.

At the Sunday morning Brunch, which wound things up, twenty-eight Family Awards were presented to individuals and units (see box on this page). The night before, at the Airpower Banquet, the President's Trophies had gone to Arthur C. Storz, "AFA's Man of the Year," and the San Fernando Valley Squadron, "Squadron of the Year." Squadron Commander H. E. "Jay" Jester accepted the trophy for his unit.

New Orleans got the nod from the delegates as the site of the 1956 National Convention, with Washington,

(Continued on page 117)

★ AFA FAMILY AWARDS ★

THE PRESIDENT'S TROPHIES

Arthur C. Storz, Omaha, Neb., AFA's Man of the Year.
San Fernando Valley Squadron, Van Nuys, Calif., AFA's Squadron of the Year.

UNIT PRESIDENTIAL PLAQUES

Ak-Sar-Ben Squadron, Omaha, Neb., Membership Plaque.
DuPage Squadron, Hillside, Ill., Youth Aviation Education Plaque.
Mifflin County Squadron, Lewistown, Penna., Civil Aviation Plaque.
Rainier Squadron, Seattle, Wash., Reserve Affairs Plaque.
San Diego Squadron, San Diego, Calif., National Defense Plaque.

INDIVIDUAL PRESIDENTIAL PLAQUES

Richard S. Boutelle, Hagarstown, Md.
Curtis E. Christensen, Encino, Calif.
James F. Czach, Manhattan Beach, Calif.
Harold H. Hansen, Seattle, Wash.
Fred O. Rudesill, New Orleans, La.
William W. Spruance, Wilmington, Del.
Robert C. Vaughan, Skokie, Ill.
James C. Vignola, Lansing, Mich.

MEDALS OF MERIT

Vernon R. Arnt, Hillside, Ill.
William Byron, Tampa, Fla.
Mrs. John L. Carr, Chicago, Ill.
J. Alan Cross, Miami, Fla.
John J. Currie, Paterson, N. J.
Paul M. Fisher, Ogden, Utah
Clyde H. Hailes, New Orleans, La.
Cecil C. Howard, Pasadena, Calif.
Robert N. Maupin, Cheyenne, Wyo.
Thomas F. Stack, San Francisco, Calif.
Thomas C. Stebbins, Worcester, Mass.
Leonard J. Stevens, New Brighton, Minn.
Mrs. Richard A. Taylor, Lansing, Mich.
Leonard A. Work, State College, Penna.

At right, H. E. "Jay" Jester, Commander of the "AFA Squadron of the Year," accepts trophy for San Fernando Valley Squadron.

At far right, "AFA's Man of the Year," Arthur C. Storz, who was Chairman of AFA's' 1954 Convention.

And now a few words from AFA's newly elected President, Gill Robb Wilson.

The Auxiliary had a busy week, too, what with the Fashion Show and Luncheon and an invitational luncheon for Mrs. Arnold. Above, Auxiliary Board meeting.

AVRO AIRCRAFT: BUILDER OF CONTINENTAL DEFENDERS

This highly skilled crew aboard Avro Aircraft's powerful CF-100 Mark 4 will soon be racing with sound up under the rim of the stratosphere.

. . . AS SURE AS NIGHT FOLLOWS DAY

Aggression recognizes no limitations of Time. Any hour can be Zero Hour.
That's why the Royal Canadian Air Force drew up specifications for a *night* and day interceptor . . . long range and all-weather, with the fire-power of a destroyer . . . to defend the skyways of its vast, northern frontier.
The specifications were met by Avro Aircraft Limited of Malton, Canada. The interceptor is the Avro CF-100.
No other *night* and day, *all*-weather interceptor in the *world* has its power and range.
At RCAF stations across Canada, around the clock, in the heat of Summer and frigid cold of Winter, collision course interception exercises with the Avro CF-100 keep RCAF pilots, navigators and ground crews alert against aggression.

AVRO AIRCRAFT LIMITED
MALTON, CANADA
A. V. ROE CANADA LTD.—MEMBER, HAWKER SIDDELEY GROUP.

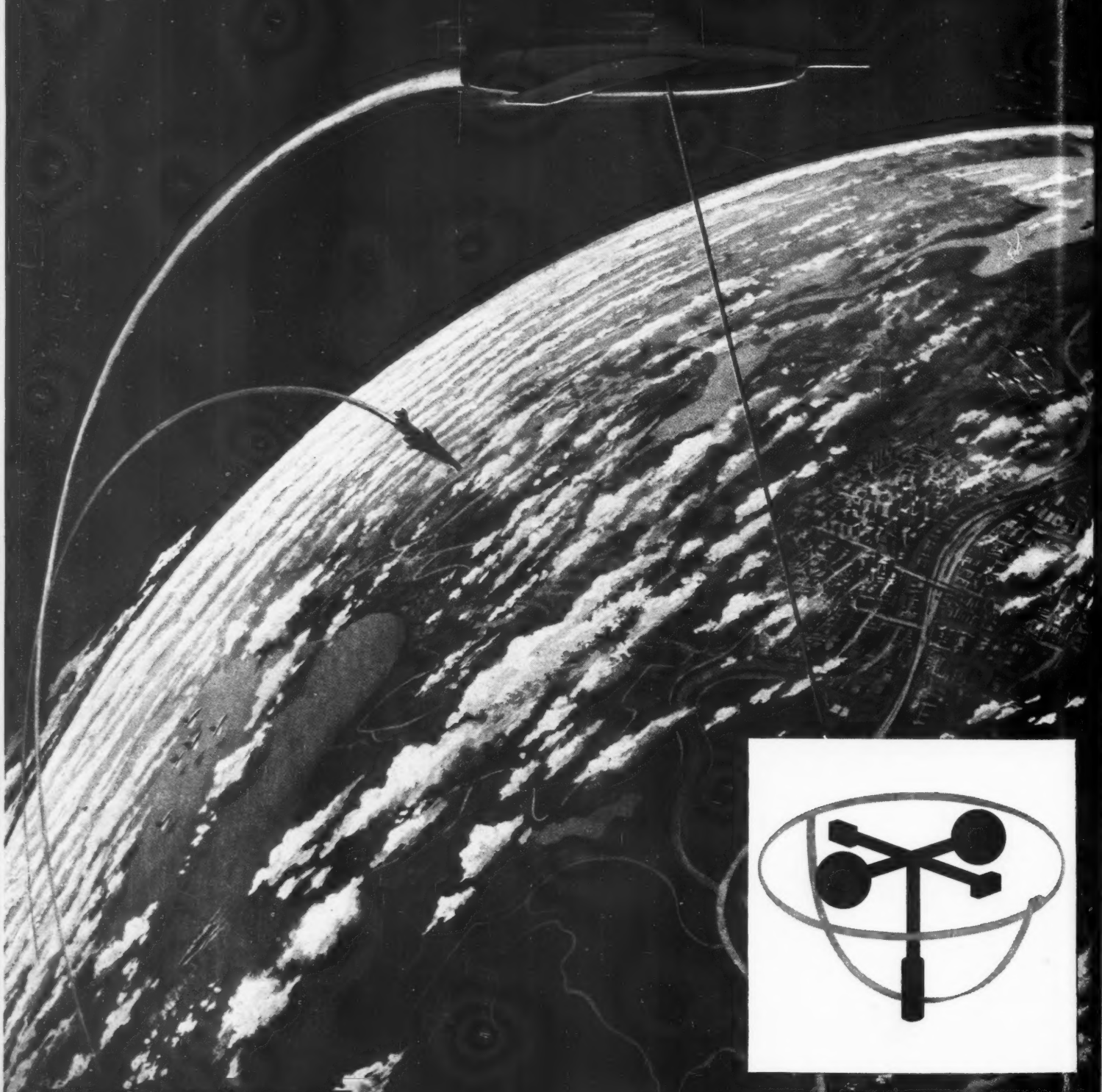
In RCAF operational multi-squadron service in Canada, squadrons of CF-100s will begin duty with NATO forces in Europe by 1956.

"four-pound pilot"

A four-pound proven, rugged and reliable gyro—laboratory accuracy on a production basis—is the key to the Arma Inertial Navigation System. This completely self-contained guidance system will be another significant contribution by Arma to pilotless aircraft and missiles operating in the tactical range. Arma . . Brooklyn, N. Y., Garden City, N. Y.

A division of American Bosch Arma Corporation.

ARMA ADVANCED ELECTRONICS FOR CONTROL



ENGINEERS—write or visit Arma for complete information on challenging opportunities in our engineering division.

WHAT THE DELEGATES DID — CONTINUED

Here's how artist Gil Walker pictured a portion of an AFA business meeting.

D. C., scene of the '53 get-together, OK'ed for 1957. In one resolution the delegates moved to streamline the method of picking future Convention cities. They directed the Board of Directors to weigh a plan whereby from now on delegates choose three potential sites, with final selection made by the Convention Site Committee and the Board. If found feasible, the plan will be introduced as a constitutional amendment at the next Convention.

Three other resolutions amended the Constitution. One, dealing with vacancies on the Board, specified that the President can fill vacancies on the Executive Committee only when such vacancies are from among appointed members. The other two further defined membership and resulted in changed wording in Sections 2 and 8 of Article IV of the Constitution.

The AFA delegates also resolved that a committee be appointed to compile material for a Squadron and Wing Operational Manual and that the manual be published and distributed within sixty days after Board approval.

One other resolution was designed to increase AFA membership. The delegates agreed that AFA National Headquarters should make available to field units increased quantities of information material such as pamphlets and posters, to be distributed by Wings, Divisions, Squadrons, and Flights to prospective members.

In other action, delegates agreed to:

- Promote Aviation Education Workshops, which have been developed in many colleges for intermediate and secondary school teachers;
- Set up Squadron blood donor programs, within the framework of the Red Cross, to make blood available to AFA members or their families.
- Encourage the activities of the

(Continued on page 119)

OUR SPECIAL THANKS . . .

to the following for sponsorship of these items and events at the AFA Convention:

American Airlines
Staff airlift

Ceil Chapman
Airpower Gown

CONVAIR, a Div. of General Dynamics
Registration Kits

Elgin Watch Company
Business Session door prizes

Fairchild Engine & Airplane Corp.
Staff airlift

General Electric Company
Airpower Ball

General Motors Corporation
Cars for Motor Pool

Goodyear Tire & Rubber Company
Morning newspapers

H. Liebes & Company
Fashion Show

Jacqueline Cochran, Inc.
Fashion Luncheon favors

Lycoming Division, AVCO
Host Suite

The Glenn L. Martin Company
Staff airlift

Pan American World Airways
Airpower Panorama tickets

Western Air Lines
West Coast newsmen

PAA
PAN AMERICAN
WORLD AIRWAYS

NEEDS
PILOTS

Career
Opportunities
with the
World's
Most Experienced
Airline

NOW OPEN
to qualified applicants!

DESIRED QUALIFICATIONS:

1. U. S. Citizen age 21-30.
2. 750 hours.
3. CAA Commercial Pilot's License, with instrument rating.
4. 2 years college.
5. Satisfactory Company Physical Examination.
6. Satisfactory references.

Company training at New York base with salary during training.

Write: **Chief Pilot**
Pan American World Airways
N. Y. International Airport
Jamaica 20, New York

SERVICE TO 6 CONTINENTS
AND AROUND-THE-WORLD

Scientific irritation for actuators

"Jitters" test in lab insures dependable operation in flight

Half a million AiResearch actuators have proved in the air the thoroughness of their manufacturer's test program.

One reason why they can be depended upon for flawless performance: they have been lab-tried beyond any limits they will ever have to meet in the field. Tests include vibration, altitude, heat and cold, load, sand and dust, immersion, temperature shock, oil spray, shock acceleration, fungus, humidity, explosion, salt spray and radio noise. They are undertaken in the finest test facilities of their kind in America.

AiResearch actuators are available for every possible aircraft requirement. You can depend on them and on all other aircraft accessories manufactured by AiResearch.

Qualified engineers in the fields listed below are needed now. Write for information.

THE GARRETT CORPORATION

AiResearch Manufacturing Divisions

Los Angeles 45, California • Phoenix, Arizona

Designers and manufacturers of aircraft systems and components: REFRIGERATION SYSTEMS • PNEUMATIC VALVES AND CONTROLS • TEMPERATURE CONTROLS
CABIN AIR COMPRESSORS • TURBINE MOTORS • GAS TURBINE ENGINES • CABIN PRESSURE CONTROLS • HEAT TRANSFER EQUIPMENT • ELECTRO-MECHANICAL EQUIPMENT • ELECTRONIC COMPUTERS AND CONTROLS

DELEGATES——CONTINUED

Experimental Aircraft Association and set up an annual award to be given by AFA and EAA to the person contributing most to the advancement of airpower through home-built aircraft.

One of the most popular features of the Convention was, as usual, the Friday evening Wing Ding Ball. A record 3,000 people danced to the music of Larry Cannon's orchestra and saw the two-hour stage show emceed by movie and TV star Ronald Regan. The show featured the Bell Sisters, vocalist Ed Hennessey, humorist and singer Johnnie O'Brien, and an ace drummer, 2d Lt. John Vana, who flew in from Omaha just for the evening. In addition, AFA's great friend Joe E. Brown presented trophies to the AFA Golf Tournament winners. Low gross winner, with a sizzling 72 plus a one-stroke handicap, was USAF golf champion Col. Rennie Kelly of Washington. Charles Bannen of Western Gear Company walked off with low net honors.

Behind the scenes, sixteen hard-working committees, with a total of 105 volunteers, kept things rolling. Headed by Mrs. H. H. Arnold as Honorary Chairman of the Convention, the committees worked under General Chairman Tom Stack. His "right-hands" were Vice Chairmen Mike Kavanaugh and Michel Pisani.

Committee heads included, Decorations, William Paganini; Fashion Show, Mrs. Michael Kavanaugh; Functions, Michael Kavanaugh; Golf Tournament, Charles Morgan; Hospitality, Clay Bernard; Information, Charles Davis; Miss Airpower, Mel Traylor; Panorama, Chet Siverson.

Also, Production, Donald George; Publicity, Tom Barbour; Registrations, Clifford Griffin; Special Activities, Michel Pisani; Squadron Host, Robert Begley; Transportation, Carl Gamblin; V-J Day Memorial, Robert Dobbins; and Unit Reunions, Gil Nettleton and Marvel Taylor.—END.

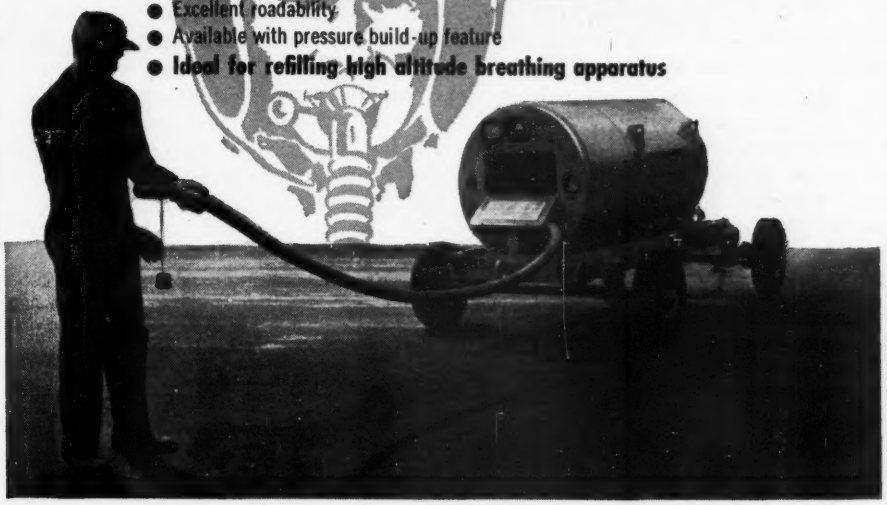
Liquid Oxygen on tap . . .

in a Cambridge

TRANSPORT DEWAR

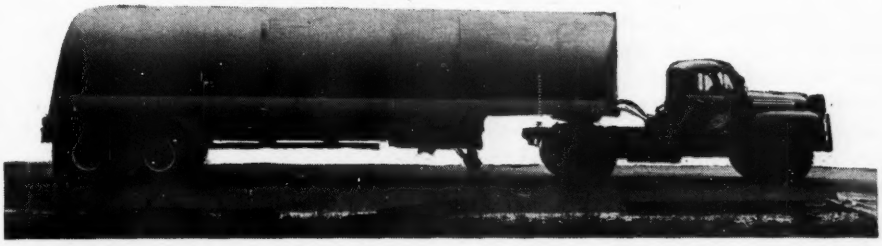
50 GALLON TRANSPORT DEWAR

- Fully insulated vacuum space
- Less than 4% evaporation loss in 24 hours
- Fully protected by proper relief valves and safety heads
- Excellent roadability
- Available with pressure build-up feature
- **Ideal for refilling high altitude breathing apparatus**



4000 GALLON TRANSPORT DEWAR

- Low center of gravity
- Provides compactness of operation
- Less than ½ of 1% evaporation per day
- Weather-tight compartment for gauges, pump and piping
- Self contained transfer pump and piping
- **Ideal for missile and rocket supply projects**



Cambridge Corporation presents its 50 and 4000 gallon transport dewars. Mobility means liquid oxygen where and when you want it . . . on the flight-line . . . at the depot . . . or at isolated rocket and missile installations. Cambridge engineering and fabrication techniques have resulted in superior performance and quality at low unit cost.

As cryogenic's pioneers in the transport and storage of liquefied gases, Cambridge offers a unique background of engineering knowledge and manufacturing know-how suitable to solve any storage or transport dewar problem.

Have a problem? Why not let Cambridge help you. Write or phone today.

Cambridge CORPORATION
Industrial Park, Lowell, Mass.
PHONE Lowell: GLenview 4-7881 Boston: UNiversity 4-6500
TWX: Lowell 432

Cambridge Corporation is a wholly-owned subsidiary of Carrier Corporation.

World's most powerful ALL-IN-ONE POWER MEGAPHONE...

Send for free literature.

AUDIO Hailer

AUDIO EQUIPMENT CO., INC.
GREAT NECK, N. Y.

Back in November, we decided to bring the case of these fifteen men—our people, part of our family—before the American public. Up to that time their plight had gone virtually unnoticed, limited generally to reports in their hometown newspapers, and not too many of those. We felt that the moral fiber of the nation was being tested in this issue—that the whole struggle against aggressive Communism was reflected in how we as a united people reacted to this problem. We took the stand that all military men run the risk of being military prisoners, but that they never deserve to be political prisoners—pawns in the enemy's propaganda offensive. We believed, as we do now, that when they are placed in that position our government, with the full support of its people, should take the strongest stand possible. We argued that, if such a stand were not made, if we sat idly by while our men were sacrificed, bargained over, traded like animals, we would compromise our basic objectives and place ourselves, as a nation, in a position to give and give again, appease some more, while a ruthless enemy proceeded to win its own kind of war without any new shots being fired.

We said these things again and again—in magazine articles, in editorials, in letters and telegrams to Congress, to the White House, to the United Nations. Early in the campaign we sent telegrams to each of the 531 members of Congress. Recently, just before the last eleven men were released, we contacted each Congressman again, this time by letter. Our editorial coverage of the problem spread through newspaper, radio, and television outlets. Once the drive was under way, public opinion and the leadership of our officials prevailed.

Many people are responsible for the release of the fifteen airmen, and we salute each one of them. This is not an attempt even to imply that we as an organization were responsible for their return to freedom. But responsible officials in Washington told us that, had we not opened the issue on a national scale, the release of these men might not have become an international incident. Having been close to the issue, I believe this to be true. And with this belief I am more proud of our Association than ever before, and proud to have been personally connected with this campaign. In my humble opinion, if we had done nothing else in the past twelve months, this effort alone would have justified our existence.

A year ago in Omaha, George Kenney told you of the progress that had been made in welding together the various segments of the Air Force Association into what he called the AFA family. To a great degree this "shakedown" period was history by the time I was privileged to take office. The groundwork for expansion had been laid. It is a fitting time to pay tribute to past presidents and national officers for their hard efforts during the difficult early years of the organization.

If there is one word that characterizes the past year's activity in AFA, it is "growth"—growth on all levels and in all directions. A quick look at the statistics will bear this out.

The paid membership of the Air Force Association, in keeping with the provisions of the Constitution, is 40,645. That represents an increase of 3,056 members over the figure of 37,589 reported last year at this time, and an increase of 5,277 over the figure of two years ago. That is not a large gain, and I'm not satisfied with it, but I believe it is a healthy gain in view of the fact that our renewal rate also climbed one percentage point—from seventy-nine percent to eighty percent—a reversal of the usual trend when membership is expanding. All categories of membership showed an increase.

At the same time, non-member subscriptions to AIR FORCE Magazine went up from 6,000 to 8,212 during the year.

As I've indicated, this is good, but not good enough. We've grown, yes, but there's a long way to go. It's something we all must work on.

We can take more pride in our organizational growth. During the past year thirty-four new Squadrons and Flights were formed in twenty states and in Germany. Five new wings were activated—in Alabama, Georgia, Montana, North Dakota, and Wyoming.

One gauge to the effectiveness of local units can be found in membership dues refunded under our kickback program for Wings and Squadrons. In the past twelve months these refunds totaled $14,411 compared with $8,898 refunded in the previous year. In addition, under the program administered by our National Wing Advisory Council, our Wings have received a total of $6,710 in direct allocations. This means that a total of $21,121 was plowed back into our units, state and local, from the general fund.

At this point, I'd like to thank our National Wing Advisory Council for the fine job it has done. George A. Anderl of Chicago is Chairman, aided by Roland Frey of St. Louis, Cecil Howard of Pasadena, Frank Ward of Battle Creek, and Leonard Work of State College, Penna.

During the past year, our income exceeded expenses by $30,017. On June 30, end of the fiscal year, the Association showed a balance in principal of $81,539.08, a gain of slightly more than $30,000 over the principal reported at the Omaha Convention. The figures are based on an audit by certified public accountants.

Financially we are still geared to the steady growth of income from AIR FORCE Magazine. The net income from the magazine now exceeds our annual net income from membership by nearly $65,000 at a time when our membership income is going up. In addition, our Industrial Associate program has undergone an almost mushroom-like growth. Last year at this time there were 108 companies affiliated with us as Industrial Associates. This year the total is 229, a gain of 121 companies, or well over 100 percent.

These figures are encouraging. We have come a long way from the deficits of only a few short years ago. Yet our current financial position should not be the cause for any complacency on our part. In the past year we have been able to establish a separate fund with our income from Life Memberships, but we have not yet accumulated all of the reserve accounts that are essential to sound business practice. Nor have we been able to set aside a fund for any lean years that may lie ahead. Until we have, let us be proud but not unduly optimistic about our financial status.

These are the bare statistical bones of AFA's growth during the past year. Even more important perhaps is the character of its expansion.

This is especially true of the Wing and Squadron activity. A good example of this is the state of Texas—a center of activity, but until recently not a center of AFA activity. We visited Texas last spring—George Kenney, Jim Straubel, Ralph Whitener, Gus Duda, and myself—and I am happy to report that we now have three Squadrons there—in Houston, Grand Prairie, San Antonio—and are due to have two more—at Fort Worth and Dallas within the next sixty days. Robert J. Smith of Dallas is the new Wing Commander. Clements McMullen of San Antonio, Vice President of the Region encompassing Texas, has traveled the big state from end to end

(Continued on page 123)

L-26B

Now in the Service of the

U. S. AIR FORCE

The L-26B is the military counterpart of the Aero Commander 560-A — a twin-engine executive transport in the service of business around the world.

AERO DESIGN Commander

AERO DESIGN & ENGINEERING CO • TULAKES AIRPORT • P. O. BOX 118 • BETHANY, OKLAHOMA

CURTISS-WRIGHT
TURBOLECTRIC PROPELLERS

enable LOCKHEED C-130A HERCULES to fly "High and Fast or Low and Slow"

The Lockheed C-130A Hercules – high speed, long range aerial freighter in quantity production for the Air Force – meets advanced requirements for air mobility of personnel, cargo and equipment. Its three-bladed Curtiss-Wright Turbolectric Propellers provide the most efficient means of converting engine power into useful thrust... facilitate low as well as high altitude operation, at both low and high speeds.

The Lockheed Hercules is one of an impressive list of turboprop-powered aircraft using Turbolectrics. These propellers, with one-piece extruded, hollow steel blades, feature full synchronization... full feathering by either manual or automatic means... fast reversing... single-lever power control.

Turbolectrics have been selected for many advanced long-range aircraft types, including the Douglas YC-124B and Boeing YC-97J transports, and the Boeing XB-47D bomber... also for such turboprop types as the Convair XFY-1 and Lockheed XFV-1 vertical take-off fighters... and for experimental aircraft such as the McDonnell XF-88B and the Republic XF-84H turboprop fighters.

Turbolectrics are specified for the major U. S. turboprop engines, which include the T-38, T-49, T-34, T-56 and T-40.

YOUNG MEN! JOIN THE U. S. AIR FORCE

Investigate Career Opportunities at Your Nearest Recruiting Office

PROPELLER DIVISION
CURTISS-WRIGHT
CORPORATION • CALDWELL, N. J.

in this organizing job, and we're grateful for his fine work.

Georgia, too, has seen a new awakening of interest in AFA. Three new Squadrons have been formed in Georgia—in Marietta, Atlanta, and Savannah. And we're proud that the new Wing Commander is also the lieutenant governor of the state—the Hon. Ernest Vandiver.

Our fastest moving new Squadron is located in Hagerstown, Md., and was organized only last month. Sparked by Dick Boutelle, President of Fairchild Aircraft and Engine Corporation, this outfit drew more than 400 people for its organizational meeting, and has a current membership of 372.

Right now the largest AFA Squadron is in Omaha, with more than 1,500 members. The Commander is John Markel. Arthur C. Storz, 1954 National Convention Chairman, was chiefly responsible for Omaha's latest membership drive, which netted 900 new members.

On an organizational basis, the California Wing continues to lead AFA, both in total membership and in number of active Squadrons. California has 3,682 members in seventeen Squadrons.

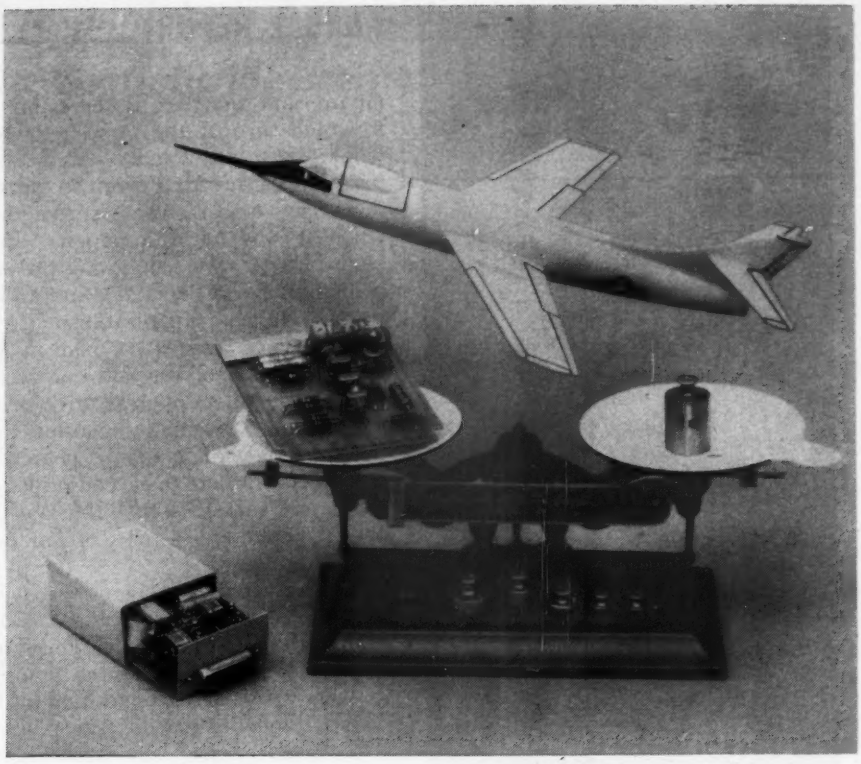
I don't want to be accused of playing the numbers racket in this report. For after all, the success or failure of AFA depends on how well we accomplish our mission of advancing the cause of airpower. On this score I think our record of the past year is just as encouraging, if not more so, than our statistical advances.

Let's take the field of Reserve affairs, which we really jumped into with both feet after the Air Reserve Association voted to become part of the AFA almost two years ago.

Our success on behalf of the Air Reserve and the Air National Guard is due in large measure to the work of two splendid advisory bodies—our Air National Guard Council, headed by Alfred C. Schwab, Jr., of St. Paul, Minn., and the Air Reserve Council, headed by T. B. Herndon of Baton Rouge, La., and the guidance of our Reserve Affairs Office at National Headquarters. With their help, we have continued to be active in the field of legislation in behalf of the Reserve and the Guard. One example of this is the new law on the statute books which is called the National Reserve Plan.

The Air Force Association took a long, hard look at the original version of the plan and concluded that, instead of strengthening our Air National

(Continued on following page)



trade excess weight for extra range with TI *transistorized* electronics

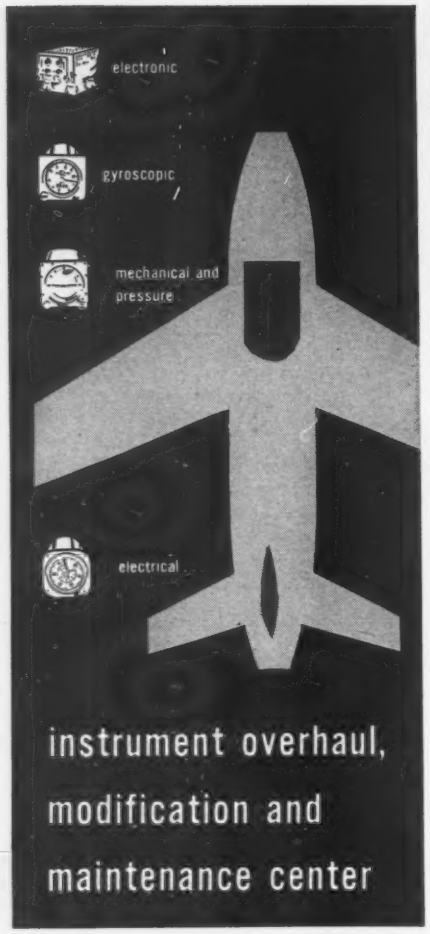
Utilizing high temperature silicon transistors . . . developed and mass-produced by Texas Instruments . . . the transistorized amplifiers illustrated weigh at least 90% less than comparable vacuum tube models. They are approximately 80% smaller . . . and require only a fraction of the power needed for vacuum tube equipment. Such TI transistorization achievements help solve the aircraft industry's toughest design dilemma . . . more reliable electronic apparatus with less weight. TI transistorized equipment and systems . . . lightweight, compact, shock resistant . . . aid military aircraft manufacturers in designing for increasingly greater speed and range.

At TI, extensive military design and production experience is enhanced by leadership in transistor manufacture. Silicon transistors, mass-produced only by Texas Instruments, far exceed MIL-T-5422C temperature specifications and more than meet all military environmental specifications. The world's leading transistor manufacturer, TI also produces subminiature transformers, deposited carbon resistors and other precision components for high efficiency operation in miniaturized circuits.

Call on Texas Instruments to design and manufacture reliable electronic systems that will help solve your weight and space problems. You can depend on the experience and ability of TI application engineers. For further information, write to Texas Instruments, Apparatus Division.

TWENTY-FIFTH YEAR OF PLANNED GROWTH

TEXAS INSTRUMENTS
INCORPORATED
6000 LEMMON AVENUE DALLAS 9, TEXAS



for every instrument from simple pressure meters to complex control systems

Don't let instrument problems ground your aircraft! Call on Decker for prompt maintenance, modification, or overhaul. Extensive lab facilities and highly skilled personnel stand ready to process one instrument or thousands. Our engineering staff is available to assist in your test equipment and modification design problems.
One of the first organizations to be licensed for all four instrument classifications, Decker has maintained its leadership by precision workmanship and fast deliveries . . . on more than half a million instruments in the last five years.

- Prime Contractor to U. S. and Allied Armed Forces
- CAA License, Classes 1-2-3-4
- Authorized Service for Eclipse-Pioneer, Kollsman, U. S. Gauge

Decker Aviation Corporation
1361 Frankford Ave., Philadelphia 25, Pa.

decker

ANNUAL REPORT

Guard and our Air Reserve forces, it would do just the opposite, while jeopardizing the voluntary enlistment program of the Air Force. So we opposed the original version at a time when it was not the popular thing to do. For we were opposing the Administration, the Pentagon, and all the major veterans' organizations.

We argued against the plan in AIR FORCE Magazine. We laid our objections before the Congress after being invited to testify, and suggested that the Reserve plan should be geared to volunteers rather than conscripts. I am happy to report that the law we now have embodies most of our recommendations.

A year ago at Omaha there were lively discussions centering about ROPA—the Reserve Officer Personnel Act. Many of our delegates thought we were wrong in our opposition to the bill as originally passed. We pointed out pitfalls in the law, particularly the forcing out of the program of pilots who could not be promoted for lack of a Table of Organization vacancy. We thought the law should be changed to keep these trained officers in the Reserve program and to protect the Reservists who were being forced out on the eve of qualifying for retirement. We suggested corrective amendments, and I am proud to say that the substance of these amendments has now been enacted into law.

To encourage high standards of participation, we this year instituted AFA awards to the outstanding Air National Guard and Air Force Reserve units in the country, and to the outstanding individual Guard and Reserve Airmen.

Just a few moments ago, we presented the Air Guard awards to the 119th Fighter-Bomber Wing, Newark, N. J., and to M/Sgt. John Fagrelius of the 175th Fighter-Bomber Wing, Sioux Falls, S. Dak. The Reserve awards went to the 435th Troop Carrier Wing, Miami, Fla., and to M/Sgt. Andrew Downey, 436th Troop Carrier Wing, Brooklyn, N.Y. The awards were made at our combined AFA Leaders-Reserve Forces Luncheon, where Dr. Edward Teller, the man primarily responsible for the design of the H-Bomb, was the speaker.

This year, for the second consecutive time, we called national attention to the high level of proficiency of Air National Guard jet pilots when we sponsored the Earl T. Ricks Memorial Trophy competition. This, as you know, is a cross-county flight, won this year by Lt. Col. James H. Poston, Columbus, Ohio. The event drew national coverage by newspapers, radio, and television second only to our National Conventions.

An interesting sidelight on the Ricks event is the fact that it served as the occasion for the first project of our new Houston Squadron, even before the Squadron was formally organized. Col. Joseph Batjer, CO of the Houston Reserve Center, and Maj. Robert H. Taylor, of the Air Guard's 136th Fighter-Bomber Wing, had joined forces to form a Squadron. They organized, as their first project, a take-off dinner for Capt. Jack M. Burden, Texas representative in the competition. Captain Burden took along with him the Charter application which was presented to me in Detroit at the conclusion of the event. Houston is a fine example of both Air Reserve and Air Guard working together for AFA and airpower.

Perhaps the most tangible result of AFA's interest in the Guard and Reserve is our series of command conferences. Some 250 Guard and Reserve people attended our Air Defense Command Conference in Colorado Springs last February. An equally large delegation was present at our Tactical Air Command conference in Washington in May. We also have arranged for Reserve and Guard personnel to attend the briefings by the Air Research and Development Command and the Air Materiel Command, which are going on right now. And the Reserve Clinic, as you know, has become a standing feature of our National Convention.

The joint membership arrangement with the Arnold Air Society has furnished us with close to 4,000 cadet members, a number which should increase as the Arnold Air Society continues in growth. In return, we have furnished the Society with an administrative office, and the advice and counsel of the experienced people of AFA. The Arnold Air Society is doing a tremendous job for airpower on the campuses of America.

In addition to our close cooperation with the Arnold Air Society, AFA for the eighth successive year has offered the Silver Medal to the outstanding Air Force ROTC cadet at individual schools. During the past year more than one hundred colleges and universities participated in this program, and AFA's Silver Medal has become the top ROTC award on many campuses.

The programming of local units in AFA hit, I think, a new high during the year. At least it is becoming more and more difficult to select the

CONTINUED

"Squadron of the Month." And I think it would be in order in San Francisco to remark that some of AFA's best local programs come out of California. Special mention is due the San Fernando Valley Squadron, which sponsored excellent Youth Air Age Education programs and a Civil Defense Symposium. Also, the San Diego Squadron conducted a series of orientation tours of nearby military installations for civic leaders and educators. Mifflin County Squadron sponsored an air show in Lewistown, Penna., which drew an attendance of more than 9,000 in a community of 40,000 inhabitants. Dayton-Wright Memorial Squadron co-sponsored for the seventh time the Wright Memorial Glider meet. This is now the next to the largest soaring competition in the country, second only to the nationals at Elmira, N.Y.

Among the top Air Age Education projects was the DuPage, Ill., Squadron's second annual "Kids Day," during which more than 200 youngsters experienced their first airplane flight. Detroit's Hoyt S. Vandenberg Squadron took 500 high school students on a tour of Selfridge AFB; after the tour, thirty-two students applied for admission to the Air Force Academy. Many Squadrons again sponsored Explorer Scout troops—among them Santa Monica, Pasadena, and Queens Squadron, N.Y.

The motion picture "Strategic Air Command" furnished an opportunity for some forty of our units to participate in local premieres. The world premiere in New York City was sponsored by the New York Wing. The Omaha Squadron sponsored a special "Ninth Anniversary Preview" on the anniversary of the founding of SAC.

Squadron activity was especially good on Armed Forces Day. Top honors went to the Skokie Valley Squadron, Ill., which co-sponsored a parade, a rally in the high school stadium, a luncheon, and a banquet attended by 700 civic leaders.

The Washington Wing sponsored an "Airpower Day" during Armed Forces Week. It included the Northwest premiere of "Strategic Air Command," a youth rally, and a mass meeting of model plane enthusiasts.

In New Jersey, the Passaic-Bergen Squadron sponsored "Maj. Gen. David H. Baker Day" to honor a native son who is now the Director of Procurement and Production of Air Materiel Command. The program tied in with the Junior Chamber of Commerce's "Project Top Flight," a nationwide ef-

(Continued on page 127)

Sub-miniature Assemblies To Gigantic Electronic Systems.....

DAYSTROM INSTRUMENT has produced tiny precision assemblies . . . to gigantic gun directors and fire control systems — all within their modern 350,000 sq. ft. plant. When you combine Daystrom's team of skilled engineers with efficient production methods and modern facilities, you'll understand how Daystrom has been able to achieve mass production of such products—on time and at low cost—for every branch of the Armed Forces and industry.

. . . For the NAVY

Radar Fire Control Systems, Mine Detecting Devices, Anti-Submarine Attack Directors, Catapult Speed Indicators, Servo Control Systems, Torpedo Assemblies.

. . . For the AIR FORCE

Capacitance Testers, All-Altitude Servo Indicators, Transistorized Receivers, R F Switches, Potentiometers.

. . . For the ARMY

Mechanical Fire Control Systems, Fuzes, Communication Systems and other instrumentation for all branches of the Army.

. . . For INDUSTRY

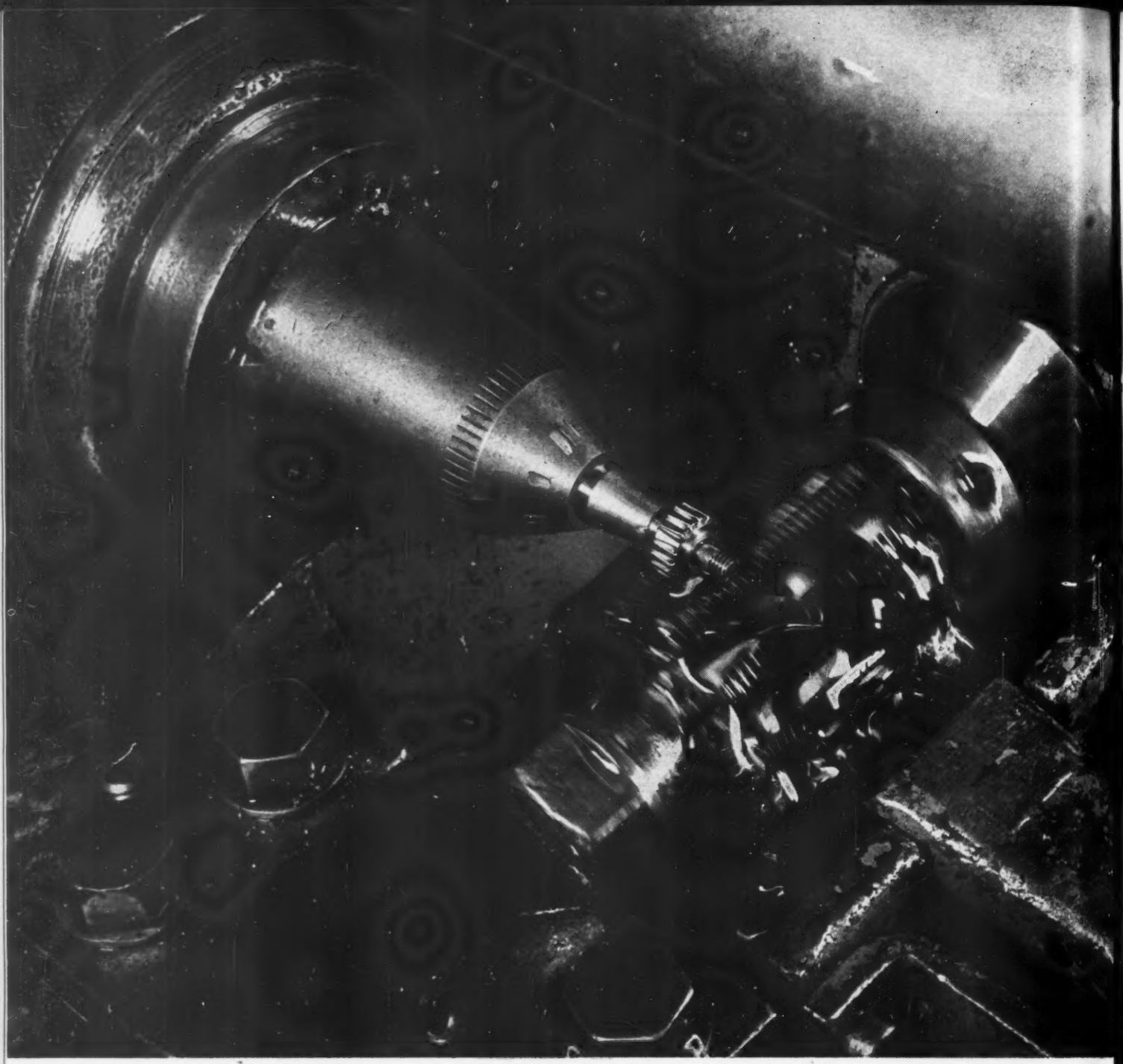
Test Equipment, Computing Devices, Radar Equipment, Nuclear Equipment, Gyro Mechanisms, Electronic and Electro-Mechanical Devices.

Write For Our Facilities Report

DAYSTROM INSTRUMENT

ARCHBALD, PENNA.

Div. of Daystrom, Inc.



THIS GEAR HOBBER maintains quantity output at a standard tolerance of .0002 inches (total composite error). Like much of the equipment at the Mechanical Division of General Mills, it was specially rebuilt in our plant to achieve higher standards of accuracy than those claimed by its manufacturer.

NEED PRECISION AND VOLUME?

Laboratory precision combined with quantity output—that's the rare combination you'll find at the Mechanical Division of General Mills. Superior equipment, experienced craftsmen, streamlined methods result in a fast, accurate job.

Whether you require a single gear or entire control systems for aircraft or missile guidance, we have the skills and facilities to handle the job perfectly from original design to field service.

WHAT'S YOUR PROBLEM? General Mills can help you with research, design, development, production engineering and precision manufacturing in connection with • bombing, navigation and missile control systems • industrial instrumentation and control • automation • specialized precision instrumentation • electro-mechanical computers • remotely-controlled manipulators • fine-particle technology • meteorological and high-altitude research.

NEW BOOKLET describes and illustrates the services available to you at the Mechanical Division. For your copy address Dept. AF-3, Mechanical Division of General Mills, 1620 Central Avenue, Minneapolis 13, Minn.

Job opportunities available for creative engineers. Work closely with outstanding men on interesting projects.

MECHANICAL DIVISION OF General Mills, Inc.

fort of the Jaycees to help the Air Force with its manpower problems.

Our Squadrons have also campaigned for better local civil aviation facilities. In Lansing, Mich., the fight is for improved landing and terminal accommodations. The Dearborn, Mich., and Pasadena Squadrons are urging their respective committees to build heliports.

Several Illinois Squadrons combined efforts to promote the O'Hare Airport Festival. The week-long program attracted thousands of visitors to the Air Force portion of the field and netted more than $1,000 apiece for the Illinois Wing of AFA, the Base Welfare Fund, and the Officers' and the Airmen's Mess Funds.

The Lincoln, Neb., Squadron, when it heard that a SAC unit was to move to Lincoln, arranged for a group of civic leaders to fly to Davis-Monthan AFB, Ariz. There they met the SAC personnel who were to move to Lincoln.

In Minnesota, the Twin-City Squadron sponsored an "Airman-of-the Month" program for Air Force units at the Municipal Airport.

During the year, eleven AFA Wings sponsored State Conventions.

My foremost regret is the number of invitations to attend AFA functions which I had to decline. I accepted as many as I could. I traveled more than 100,000 miles during the year and attended some thirty-five different events—from Seattle to Gainesville, Fla., and from Los Angeles to Washington. Invariably, the committees had done an excellent job.

In my discussions with Squadrons regarding the requirements for effective programming at the local level, it became clear that a complete review of the Squadron effort was in order. I continued to discuss the matter with our community leaders while forming a committee of professionals to give us counsel. I selected six public relations directors from industry, who also had community relations responsibilities and who were AFA members closely connected with our work. Out of this came an outline of a plan for improving Squadron programming through better advanced planning and increased efforts on the part of our national headquarters staff.

The latter, of course, could not be accomplished without additional staff members and additional funds. I placed the problem before the Board and a three-man committee—composed of Art Kelly, Tom Lanphier, and myself—was appointed to review the situation in terms of the budget.

When you're doubly geared for action, any job can be made *twice* as easy . . . and dual ARC Omni installations double flight efficiency, increase the pilot's confidence in navigation. With dual omni 15D equipment, a single pilot can make a fix *faster* . . . he can fly any omni track while also cross-checking for position. It's easier to make transition from omni to runway localizers.

With two pilots, the work can be shared for greater ease, by using both omni instruments simultaneously for different jobs.

ARC 15D Omni is compact, lightweight, CAA certified, and now employs new course indicator which combines course selector and cross-pointer meter in a single space-saving unit.

Lighten the load with ARC DUAL omni. Data on request.

Dependable Airborne Electronic Equipment Since 1928

ARC

Aircraft Radio Corporation

BOONTON, NEW JERSEY

Omni Receivers • 900-2100 Mc Signal Generators • UHF and VHF Receivers and Transmitters • 8-Watt Audio Amplifiers • 10-Channel Isolation Amplifiers • LF Receivers and Loop Direction Finders

We determined, and the Board later accepted our conclusions, that the Washington staff should and could be augmented to give more guidance and actual programs to our Squadrons. Soon after this Convention is over, this program at headquarters will go into effect, gradually at first.

However, much has already been done from a planning standpoint, and we have some tangible results. Our Texas trip, already mentioned, has resulted in certain refinements to the plan which can be applied elsewhere. For example, we plan to follow up our national airpower conferences with local airpower conferences of a similar nature, based on the information gathered at the national meetings. Several Texas Squadrons are preparing to inaugurate such conferences in the fall. The Hagerstown Squadron has a similar schedule. I have great confidence in this idea. I think our Squadrons can present four top-notch airpower symposiums each year without too much trouble since headquarters will be providing them with what amounts to a "packaged" program. As soon as this plan is tightened up—I have presented it to the executive committee for comment—it will be presented to all Squadrons.

(Continued on following page)

In addition, we have had a wonderful voluntary effort by several members of the Los Angeles group—namely, Burt Lynn, Bill Walker, Bob Brooks and Dick Leonard. They have conducted their own symposium on Squadron public relations and have made an excellent report which has been distributed to all units. I hope this is the start of a program which will find our Squadrons studying ways and means to improve their effectiveness.

This Convention marks the third anniversary of our Ladies Auxiliary. This branch of our family has done a good job of handling our dependents' assistance program. As you know, this is a system whereby AFA sends a letter of condolence to widows of Air Force personnel killed in line of duty, with a copy to the nearest AFA Squadron or Auxiliary unit for possible follow-up action. The women have done a wonderful job in contacting the Air Force widows.

I mentioned earlier that the number of companies affiliated with us as Industrial Associates had more than doubled during the year. I believe this tremendous growth, far more than we anticipated even a few months ago, is due primarily to the series of command conferences we are sponsoring. I feel that it is a proper role for AFA to help bring industry and Air Force together so that common problems can be more quickly resolved to the benefit of the entire nation.

For example, as a result of our Air Force Manpower Conference last year, a working committee of industry people is now coordinating industry participation in the Air Force recruiting program, with AFA serving as the executive agency. Recently, the Air Force gave formal recognition to this committee. Industry has voluntarily spent or committed several millions of dollars in behalf of Air Force recruiting objectives, in recruiting films, advertisements, brochures, radio and TV programs, billboards, and the like. We're proud to be a part of this show, and to spur the Air Force recruiting effort we are inaugurating, at this Convention, an annual award to the top Air Force Recruiting Group this year.

Last December, at our Air Logistics conference, 800 of the nation's top aviation executives assembled to hear a program that included both the Secretary of the Air Force and the Chief of Staff as speakers. The conference literally dug the modern air logistics concept out of the bottom drawers at the Pentagon. The response was very favorable—from industry, from the press, from the Air Force.

In February we staged a briefing by General Chidlaw and his staff of Continental Air Defense Command, held at their Colorado Springs headquarters. The response was just as enthusiastic.

We followed the same general setup for our Tactical Air Command briefing, held in Washington, with the annual Armed Forces Day Dinner, on May 20. Incidentally, AFA initiated this dinner and now co-sponsors it.

The latest in the Conference series is a combined briefing on both Air Research and Development Command and Air Materiel Command, and it is going on right now. It is not a part of the Convention program but was scheduled for this time and place to suit the convenience of the large number of persons who can thereby attend both events.

We have established industry exhibits as a major part of our Industrial Associate and Convention programs. This year's exhibit, in San Francisco's huge Civic Auditorium, is the largest of its kind ever held. Your registration entitles you to attend free of charge and I recommend that you do so.

The tremendous expansion of projects and programs has placed a heavy burden on our headquarters staff. The volume of activity actually has been growing faster than the staff can wisely and thoughtfully be expanded to meet it. We have recently strengthened the vital Special Projects department, which handles the physical details of our conferences and Convention. Other headquarters changes to meet the new situation are in the offing.

Since the last Convention we have accomplished a major overhaul and streamlining of our membership solicitation and fulfillment departments. This has been done under the supervision of one of the top men in the field, until recently promotion director of one of the nation's major publishers. Direct mail membership solicitation is now on a regular, systematic basis and our growing membership can be in great part attributed to this stepped-up effort. Accompanying changes in fulfillment procedures have allowed us to take care of the increasing membership load, temporarily at least, without adding personnel in this department. Consolidated

(Continued on page 131)

JOE KLAAS

Here is the epic story of one of the great marches of history, a march made by ten thousand American airmen, prisoners in Germany, during the final desperate months of the war.

Maybe I'm Dead is a novel of overwhelming force and narrative drive, a book honest in its fidelity to every aspect of a fearful, almost unbelievable situation.

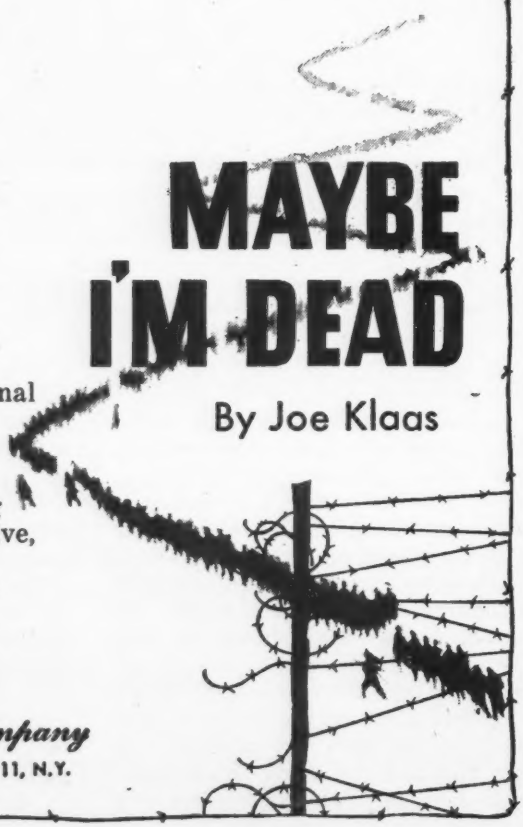
$4.50 at all bookstores

The Macmillan Company

60 FIFTH AVENUE, NEW YORK 11, N.Y.

MAYBE I'M DEAD

By Joe Klaas



NOW, MORE THAN EVER BEFORE, THIS TRADEMARK IS RECOGNIZED AND RESPECTED

WHEREVER ENGINES ARE USED

...ON LAND.....AT SEA.....IN THE AIR...

Ever since 1902, Continental engines have been building acceptance for manufacturers of powered products—first in the automotive industry, and more recently throughout the whole power equipment field . . . The Continental Red Seal trademark was helping to sell motor cars long before the advent of such frills as comfort and style, back in the days when the big question was simply: "Will it run?" The engine with the Red Seal name plate ran, and that took a lot of the guesswork out of the business of choosing a car , . . Today, Continental dependability is a byword all over the world. Continental Motors has not only kept abreast of technological progress, but has constantly broadened its line to meet changing needs. In the Transportation-Agricultural-Industrial Division alone, some 75 basic engine models are available, in more than 2,000 different specifications, for every conceivable job within their broad power range . . . Continental diversification was never so broad as today. Red Seal power is building prestige for manufacturers of vehicles, farm tractors and implements, industrial trucks, conveyors and materials handling devices, pumps, mixers, compressors, earth movers and other road building and maintenance equipment, as well as for leading builders of boats and utility planes. End-users of products in all these specialized fields are learning to choose the machine whose maker thinks enough of his own good name to standardize on Red Seal power . . . To the builders of such machines, as well as to the ultimate users whose preference guides the choice, Continental pledges continuation of the policies which have earned the Red Seal trademark such universal respect. Emphasis on sound engineering, precision manufacture, and all else that goes to make up quality, will be zealously maintained.

●

RED SEAL ENGINES ARE BACKED BY PARTS AND SERVICE EVERYWHERE

Continental Motors Corporation

MUSKEGON • MICHIGAN

6 EAST 45TH STREET, NEW YORK 17, NEW YORK • 6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 3817 SOUTH SANTA FE AVENUE, LOS ANGELES 58, CALIFORNIA • 910 SOUTH BOSTON STREET, ROOM 1008, TULSA, OKLAHOMA • 1252 OAKLEIGH DRIVE, EAST POINT (ATLANTA) GEORGIA

FREE BOOKLET OUTLINES GOOD PAYING CAREER OPPORTUNITIES FOR YOU!

Your Air Force know-how helps you move right back into a job where experience *counts*. Your prior service fits you for the job that's best for you and best for the Air Force. Find out today what the new grade determination policy can mean to you...find out what new pay and allowances you may receive by making the Air Force your career. Don't miss this opportunity to get going again on the world's finest fighting team—the U. S. Air Force.

TALK TO YOUR LOCAL AIR FORCE RECRUITER OR MAIL THE COUPON TODAY FOR YOUR FREE BOOKLET

Today and Tomorrow

You're better off in the

U. S. AIR FORCE

V-14-AF2

AIRMAN INFORMATION BRANCH, BOX 2202, WRIGHT-PATTERSON AIR FORCE BASE, DAYTON, OHIO

Please send me more information on the Air Force Prior Service Program.

Name.....

Street..... **City**.....

State..... **Year Separated**.....

purchase of office supplies and promotion materials and establishment of an improved inventory system have added to the efficiency of the national headquarters operation.

This past year, as has been true since Air Force Association was organized, our official journal, AIR FORCE Magazine, is the cohesive factor that binds AFA together. It continues to be the well-edited, authoritative, highly respected publication that we have come to expect. It has solidified its position as the world's leading magazine on military aviation.

The magazine continues to project its influence and that of AFA far beyond its immediate readership. Its articles have been reprinted by the Federal Civil Defense Administration, the National War College, the Air University, the Army's Command and Staff School, the US Naval Academy, the AF Institute of Technology, the Army's Transportation School, George Washington University for its management training program, the Civil Air Patrol, and literally dozens of Air Force units, AF-ROTC detachments, industrial house organs, and military publications both domestic and foreign.

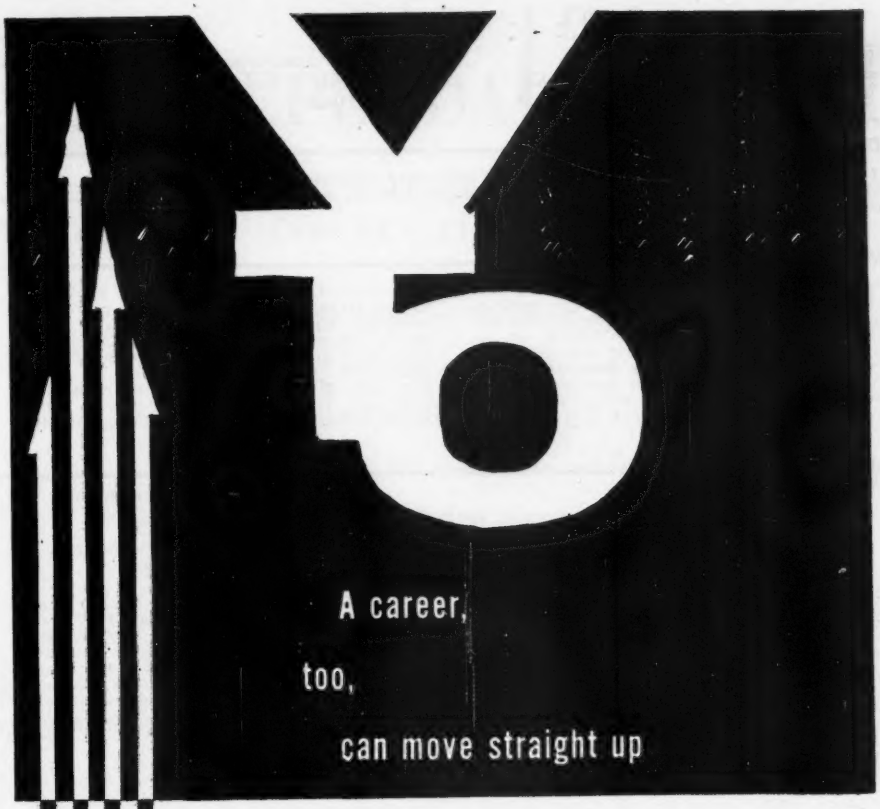
Newsmen find AIR FORCE good copy. It is consistently quoted as an authoritative source in newspapers and on radio and television. Its articles regularly appear in the *Congressional Record*, and are increasingly serving as the basis for editorials, usually favorable, in the nation's most influential publications.

In many ways the voice of AFA reaches and influences millions of Americans.

This has been a long report, I know. And I haven't attempted to cover all of our activity during this unusually fruitful year. Some are recurrent, like our annual participation in the observance at Kitty Hawk on December 17, and our help with the Mile-High Kite Flying competition at Grandfather Mountain, N. C.

If a project advances airpower and is within our financial and physical capability, we'll take it on. We have accomplished a great deal. But our deeds begin to appear much smaller when they are stacked against what is yet to be accomplished if we are to have the kind of airpower we need to maintain peace with honor.

It is with a great sense of gratitude to all of you who have helped us during the past year that I humbly submit to you, the Air Force Association in Convention assembled, this, my Annual Report.—END



Specialists in VTO: Take a look at Fairchild's progress in this exciting field of modern aviation!

Here is real opportunity to make your mark in this important work, offered by the fast-growing, progressive organization that gave the world the famous C-119 *Flying Boxcar* and C-123 *Provider*. For now at Fairchild extensive research and development programs are in progress to create new VTO craft, as well as transports, fighters and missiles.

If you have experience in this field, and can make genuine contributions to its advancement, then you have an important place at Fairchild, and the chance to move straight up in your profession.

Consider, too, the added advantages of living and working close to Baltimore and Washington, in the attractive Cumberland Valley, where housing, schools and recreational facilities are among the nation's finest. And, Fairchild's salary plan, paid pensions, health, hospitalization and life insurance benefits give you extra security in which to build your future.

Send a detailed resume of your experience to Walter Tydon, Chief Engineer. All correspondence will be kept in strictest confidence, of course.

"where the future is measured in light-years"

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
HAGERSTOWN, MARYLAND

THIS IS AFA

The Air Force Association is an independent, non-profit, airpower organization with no personal, political or commercial axes to grind; established January 26, 1946; incorporated February 4, 1946.

OBJECTIVES

• To assist in obtaining and maintaining adequate airpower for national security and world peace. • To keep AFA members and the public abreast of developments in the field of aviation. • To preserve and foster the spirit of fellowship among former and present personnel of the United States Air Force.

MEMBERSHIP

Active Members: Individuals honorably discharged or retired from military service who have been members of, or either assigned or attached to the USAF or its predecessor services, or who are currently enrolled in the Air Force Reserve or the Air National Guard. $5.00 per year.

Service Members (non-voting, non-office holding): Military personnel now assigned or attached to the USAF. $5.00 per year.

Cadet Members (non-voting, non-office holding): Individuals enrolled as Air Force ROTC Cadets, Civil Air Patrol Cadets, or Cadets of the US Air Force Academy. $3.00 per year.

Associate Members (non-voting, non-office holding): Individuals not otherwise eligible for membership who have demonstrated their interest in furthering the aims and purposes of the Air Force Association. $5.00 per year.

Industrial Associates: Companies affiliating with the Air Force Association on a non-membership status that receive subscriptions to AIR FORCE Magazine and special magazine supplements known as Industrial Service Reports.

OFFICERS AND DIRECTORS

GILL ROBB WILSON, President
366 Madison Ave.
New York 17, N. Y.

JULIAN B. ROSENTHAL, Secretary
630 Fifth Ave.
New York 20, N. Y.

SAMUEL M. HECHT, Treasurer
The Hecht Co.
Baltimore 1, Md.

JOHN R. ALISON, Chairman of the Board
c/o Northrop Aircraft, Inc.
Hawthorne, Calif.

Regional Vice Presidents: Thomas C. Stebbins, 66 Uxbridge St., Worcester, Mass. **(New England);** Randall Leopold, Box 150, Lewistown, Penna. **(Northeast);** Charles W. Purcell, 1102 N. Charles St., Baltimore 1, Md. **(Central East);** Alex G. Morphonios, 3131 NW 16th St., Miami, Fla. **(Southeast);** Glenn D. Sanderson, 44 Capital Ave., NE, Battle Creek, Mich. **(Great Lakes);** Edwin A. Kube, 4516 42d Ave. South, Minneapolis, Minn. **(North Central);** Frank T. McCoy, Jr., Powell Ave., Nashville 4, Tenn. **(South Central);** J. Chesley Stewart, 1423 Locust St., St. Louis 3, Mo. **(Midwest);** Clements McMullen, 515 Lamont Ave., San Antonio 9, Tex. **(Southwest);** Wm. Thayer Tutt, Broadmoor Hotel, Colorado Springs, Colo. **(Rocky Mountain);** Winfield G. Young, 2039 E. 103 St., Seattle 55, Wash. **(Northwest);** Cecil C. Howard, 359 N. Los Robles, Pasadena 4, Calif. **(Far West);** Roy J. Leffingwell, P. O. Box 2450, Honolulu, T. H. **(Pacific Ocean Area).**

Directors: George A. Anderl, 412 N. Humphrey Ave., Oak Park, Ill. **Walter T. Bonney,** 9617 Bristol Ave., Silver Spring, Md.; **Thomas D. Campbell,** 323 Third St., SW, Albuquerque, N. M.; **Beulah M. Carr,** President, National Ladies Auxiliary, 5346 N. Ludlam Ave., Chicago, Ill.; **John J. Currie,** 175 E. Railway Ave., Paterson, N. J.; **Edward P. Curtis,** 343 State St., Rochester 4, N. Y.; **James H. Doolittle,** 50 W. 50th St., New York, N. Y.; **Merle S. Else,** 2127 E. Lake St., Minneapolis 7, Minn.; **George D. Hardy,** 3403 Nicholson St., Hyattsville, Md.; **John P. Henebry,** Box 448, Park Ridge, Ill.; **Robert S. Johnson,** 235 S. Brixton Road, Garden City, L. I., N. Y.; **Arthur F. Kelly,** 6060 Avion Drive, Los Angeles 45, Calif.; **George C. Kenney,** 23 W. 45th St., New York, 19, N. Y.; **Thomas G. Lanphier, Jr.,** 3165 Pacific Highway, San Diego 12, Calif.; **W. Barton Leach,** 295 Meadowbrook Road, Weston, Mass.; **Carl J. Long,** 1050 Century Bldg., Pittsburgh 22, Penna.; **James H. McDivitt,** 7461 Kenton Drive, San Gabriel, Calif.; **Dr. Jerome H. Meyer,** 880 Fidelity Bldg., Dayton, Ohio.; **Msgr. William F. Mullally,** 4924 Bancroft Ave., St. Louis 9, Mo.; **Gil Petrina,** National Commander, Arnold Air Society, Univ. of Md., College Park, Md.; **Mary Gill Rice,** 18 Tapia Dr., San Francisco, Calif.; **Peter J. Schenk,** 119 Elm St., Fayetteville, N. Y.; **C. R. Smith,** Apt. 4-A, 510 Park Ave., New York 22, N. Y.; **Carl A. Spaatz,** 1654 Avon Place, NW, Washington, D.C.; **Thomas F. Stack,** Central Tower, San Francisco 3, Calif.; **Harold C. Stuart,** Suite 643, 1001 Conn. Ave., NW, Washington, D. C.; **T F. Walkowicz,** Suite 5600, 30 Rockefeller Plaza, New York 20, N. Y.; **Frank W. Ward,** 257 Lake Shore Dr., Battle Creek, Mich.; **Morry Worshill,** 2223 Highland Ave., Chicago 45, Ill.

WING COMMANDERS

Thomas E. Bazzarre, Jr., Beckley, W. Va.; Girard A. Bergeron, Warwick, R. I.; Joseph Boricheski, South River, N. J.; W. P. Budd, Jr., Durham, N. C.; Philipe Coury, Readville, Mass.; Stanley Denzer, Brooklyn, N. Y.; Leonard Dereszynski, Milwaukee, Wis.; Irwin F. Duddleson, South Bend, Ind.; Roland E. Frey, Webster Groves, Mo.; Arthur L. Gordon, Honolulu, T. H.; Frederic P. Goulston, Dayton, Ohio; William H. Hadley, Little Rock, Ark; Harold R. Hansen, Seattle, Wash.; James Hewett, Denver, Colo.; Arland L. James, Albuquerque, N. M.; George James, Daytona Beach, Fla.; William G. Kohlan, Minneapolis, Minn.; William F. Kraemer, Springfield, Va.; Robert N. Maupin, Cheyenne, Wyo.; Robert H. Mitchell, Portland, Ore.; Charles O. Morgan, San Francisco, Calif.; Stanley Mull, Benton Harbor, Mich.; Charles P. Powell, Mobile, Ala.; F. O. Rudesill, New Orleans, La.; George Van Leeuwen, Ogden, Utah; Donald P. Spoerer, Chicago, Ill.; Ernest Vandiver, Atlanta, Ga.; John S. Warner, Towson, Md.; Frank W. Wiley, Helena, Mont.; Leonard Work, State College, Penna.; Glenn Yaussi, Lincoln, Nebr.

COMMUNITY LEADERS

Akron, Ohio, Don Wohford, 1740 16th St., Cuyahoga Falls; **Albany, N. Y.,** Walter H. Taylor, Dutch Village, Meananda; **Altoona, Pa.,** George Knab, 719 1st Ave.; **Arlington, Mass.,** Richard Carter, 147 Jason St.; **Baltimore, Md.,** William Reber, 335 E. 27th St.; **Bangor, Me.,** Martin Cantor, 312 French St.; **Battle Creek, Mich.,** Oscar W. Brady, 14 Douglas St.; **Boston, Mass.,** E. L. Shuman, 1625 Commonwealth Ave., Brighton; **Brooklyn, N. Y.,** Joseph Grieco, 353 36th St.; **Cheyenne, Wyo.,** Donald Hefkin, 508 E. 25th St.; **Chicago, Ill.,** Donald Spoerer, 1442 W. 83d St.; **Chicopee, Mass.,** Raymond J. Tomchik, 104 Granville Ave.; **Cincinnati, Ohio,** Dean S. Rood, 4009 Lansdowne Ave.; **Clearfield, Utah,** Don Hartley, P.O. Box 114; **Cleveland, Ohio,** Melvin J. Fenrich, 535 E. 246th St., Euclid; **Colorado Springs, Colo.,** H. C. Mulberger, Box 205; **Dayton, Ohio,** Jack Jenefsky, 1428 Benson Dr.; **Daytona Beach, Fla.,** Arch Yelvington, 139 S. Oleander Ave.; **Dearborn, Mich.,** Richard Porch, 8221 Manor, Detroit; **Detroit, Mich.,** Morton Hack, 28 W. Adams; **Elgin, Ill.,** Ray McGaughey, 1166 Logan Ave.; **Enid, Okla.,** Clyde Dains, 430 S. Van Buren; **Fairfield, Calif.,** Richard Rowe, 1406 Clay St.; **Flint, Mich.,** Ross Robinette, 4026 Donnelly; **Fort Worth, Tex.,** Jerry W. Davidson, 2437 Medford Court; **Fresno, Calif.,** Walter Willms, 1229 Linden Ave.; **Grand Rapids, Mich.,** Edward White, 2726 Albert Dr., SE; **Hagerstown, Md.,** C. F. Barclay, Fairchild A & E Corp., Box 770; **Harrisburg, Penna.,** Robert Green, 4136 Ridgeview, Rd., Colonial Park; **Hollywood, Fla.,** A. A. Wittenstein, P. O. Box 635; **Honolulu T. H.,** William Saunders, P. O. Box 1618; **Houston, Tex.,** Robert B. Thieme, 5414 Kleberg; **Jackson, Mich.,** Keith L. Hall, 1314 Rhodes St.; **Kansas City, Kan.,** Frederick Betts, 400 E. Donovan Rd.; **Kenosha, Wis.,** Dale G. March, Rt. 4, Box 655; **Knoxville, Tenn.,** Laurence Frierson, c/o Hamilton Nat'l Bank; **Lake Charles, La.,** L. R. Savoie, Gordon Bldg.; **Lansing, Mich.,** James Vignola, 400 Gunson St., **Leesburg, Fla.,** Brad Hester, 1101 Lee St.; **Lewistown, Pa.,** Max Fleming, 46 Spanogle Ave.; **Lexington, Mass.,** Harold E. Lawson, RFD; **Lincoln, Nebr.,** Walter Black, 726 Stuart Bldg.; **Long Beach, Calif.,** Floyd Damman, 5515 Lorelei, Lakewood; **Los Angeles, Calif.,** Ray Scherer, 519 S. Fir, Inglewood; **Madison, Wis.,** Edward J. Lottes, 405 Stone Terrace; **Miami, Fla.,** Ted Koeschler, 10803 NE 9th Ave.; **Miami Beach, Fla.,** John Peterson, 4881 Lake Dr. Lane, So. Miami; **Milwaukee, Wis.,** Leonard Dereszynski, 2922 S. 13th; **Minneapolis, Minn.,** Leonard Stevens, 5493 Erickson Rd., New Brighton; **Mobile, Ala.,** Robert Ely, 2030 Ellen Dr.; **Modesto, Calif.,** Zenas Hanson, 625 Reno Ave.; **New Haven, Mo.,** D. D. Borcherding; **New Orleans, La.,** Clyde Hailes, 5218 St. Roch; **Ogden, Utah,** Marvin Fischer, 541 23d St.; **Oklahoma City, Okla.,** Mace Spangler, 2500 NW 28th St.; **Omaha, Nebr.,** J. H. Markel, Jr., 6001 Military Ave.; **Pasadena, Calif.,** Ozro Anderson, 439 N. Catalina Ave.; **Philadelphia, Pa.,** Frank Stieber, 620 S. 56th St.; **Phoenix, Ariz.,** B. F. Foote, Jr., 2310 E. Yale; **Pittsburgh, Pa.,** Robert L. Carr, 1227 Chelton; **Portland, Ore.,** Glenn Currey, 3715 N. Longview Ave.; **Sacramento, Calif.,** C. P. Sheetz, 2929 Fulton Ave.; **St. Joseph, Mich.,** Ralph A. Palmer, 2522 Thayer Dr.; **St. Louis, Mo.,** Wallace G. Brauks, 4927 Wise Ave.; **San Antonio, Tex.,** William Bellamy, 200 Tuttle Rd.; **San Diego, Calif.,** Jim Snapp, 3425 Udal St.; **San Francisco, Calif.,** Bob Begley, 1763 22nd Ave.; **San Juan, P. R.,** Jose Rivera, 207 Jose de Diego St., Rio Piedras; **Santa Monica, Calif.,** Theodore Stonehill, 2937 Motor Ave.; **Savannah, Ga.,** William H. Kelley, P. O. Box 1962; **Seattle, Wash.,** James Nelson, 11027 Meridian Ave.; **Skokie, Ill.,** Robert Vaughan, 8303 N. Monticello Ave.; **South Bend, Ind.,** Paul Moyer, 618 E. Washington; **Springfield, Mo.,** Carl J. Benning, 523 Woodruff Bldg.; **Stockton, Calif.,** Royal L. Parker, 220 E. Noble St.; **Syracuse, N. Y.,** J. William Lowenstein, 1026 Westcott St.; **Tampa, Fla.,** Bill Byron, 4515 Sevilla; **Taunton, Mass.,** Robert Ramsay, 12 Annawan St.; **Toledo, Ohio,** Jack Sperling, 709 Independence; **State College, Pa.,** John Fox, RFD #1; **Van Nuys, Calif.,** Jay Jester, 15915 Hartland; **Washington, D. C.,** Donald Steele, 224 Monroe St., Falls Church, Va.; **West Palm Beach, Fla.,** Edw. L. Johannes, 628 Forest Hills Blvd.; **Worcester, Mass.,** Charles Cashen, 4 Othello St.; **Yakima, Wash.,** Henry Walker, 6403 Summitview Ave.

NATIONAL HEADQUARTERS STAFF

Executive Director: James H. Straubel

Assistant for Reserve Affairs: Edmund F. Hogan

Program Director: Ralph V. Whitener

Assistant for Special Events: Herbert B. Kalish

Organization Director: Gus Duda

A DEPENDABLE SOURCE

FOR CREATIVE ENGINEERING AND QUALITY MANUFACTURING

Bendix Products Division has long specialized in landing gear, including wheel brakes and struts, as well as in fuel metering and engine control systems.

Serving almost all American air frame and engine manufacturers, Bendix can bring much of the combined know-how of the industry to the benefit of any one project.

FOR EXAMPLE . . .

Bendix Cerametallic Brake Lining actually gives fifty percent greater braking capacity, has five times longer lining life and cuts delining and relining time in half.

To accomplish these unprecedented advantages, Bendix engineers discarded previous conceptions of brake lining and developed an entirely new and fundamentally different lining. Known as Cerametallic Brake Lining, it contains no resin or other organic substance; the base being a ceramic material combined with other special ingredients to give longer wear and better frictional properties.

Cerametallic Brake Lining, like other Bendix engineering achievements, is solid evidence that the aircraft industry can continue, as in the past, to look to Bendix for creative engineering and quality manufacturing.

BENDIX PRODUCTS DIVISION SOUTH BEND INDIANA

Export Sales and Service: Bendix International Division
205 E. 42nd St., New York 17, N. Y.

Cerametallic lining attached to brake stator.

FLOAT AND INJECTION TYPE CARBURETORS . . . DIRECT INJECTION FUEL SYSTEMS . . . FUEL METERING AND ENGINE CONTROL SYSTEMS FOR JETS AND TURBOPROP ENGINES . . . BRAKES, WHEELS AND SHOCK ABSORBING STRUTS FOR ALL TYPES OF AIRPLANES

Bendix Products Division

Bendix AVIATION CORPORATION

Travel Pointer: **35 leading airlines on all six continents now offer you the speed, comfort, and dependability of the Convair!**

More airlines have chosen the Convair than any other modern passenger plane! Wherever you are, you'll find the Convair's performance is a model of engineering efficiency and dependability! For your comfort there are built-in steps, self-service luggage racks, and many other features that are now being planned for the passenger planes of tomorrow.

The Convair offers you these advantages—*today!* Ask your favorite airline or travel agent to make your next flight a Convair—first choice all over the world!

CONVAIR

A DIVISION OF GENERAL DYNAMICS CORPORATION

As a trainer, or a transport for the U.S. Air Force and Navy, the Convair is setting new records for versatility and performance... another evidence of Convair's Engineering to the Nth Power!